

# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LXIV.

SATURDAY, MARCH 24, 1894.

NO. 12.

## ORIGINAL ARTICLES.

### PERIPHERAL FACIAL PARALYSIS.<sup>1</sup>

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PERIPHERAL facial paralysis, of Bell's type, so-called, is one of the most frequently met of nervous lesions, aside from those that are called functional. It results from a neuritis of the facial nerve, either external to the stylo-mastoid foramen or within the aquæductus Fallopii. During ten years of clinical work in the Nervous Department of the Manhattan Eye and Ear Hospital fifty-two cases of this affection have been treated. These cases have all received electric treatment only, aside from the regulation of the general health, and they show conclusively the value of such treatment, if persistently carried out, in securing the cure of the affection or a marked degree of improvement.

The facial nerve, from its anatomic relations in its course from the brain to the face, is peculiarly exposed to influences producing neuritis. Arising from a nucleus in the floor of the fourth ventricle, it makes its exit from the medulla in the groove between the olivary and restiform bodies, just behind the pons. It passes forward and outward upon the crus cerebelli and enters the internal auditory canal lying upon the auditory nerve. This close relation with the nerve of hearing often determines a common lesion of both nerves in the canal. At the bottom of the meatus it enters the aquæductus Fallopii, and follows its course as it curves downward behind the tympanic cavity, in the substance of the temporal bone. It is there exposed to the influences of pressure and inflammation extending from a diseased middle ear; and it is peculiarly liable to pressure from its course, as it lies in a small bony canal which gives no room for the swelling accompanying inflammation of its sheath, so that a very moderate degree of inflammatory action may determine sufficient pressure to destroy the function of the nerve partly or entirely.

In the upper part of the canal, through the Vidian nerve and Meckel's ganglion, the facial nerve supplies the levator palati and uvula, and taste-fibers to the tongue. A lesion here, according to some authors, causes paralysis of the palate;

a lesion beyond this point leaves the palate normal. Just beyond this point the nerve enlarges to form the geniculate ganglion, from which rises a tympanic branch, supplying the stapedius and laxator tympani muscles. A lesion here is accompanied by paralysis of these muscles, and an abnormally tense tympanic membrane, causing the rare symptom of hyperacusis or exaggerated hearing.

As the nerve passes vertically downward behind the tympanic cavity it gives off the chorda tympani nerve one-quarter of an inch before its exit from the stylo-mastoid foramen. This nerve supplies filaments to the submaxillary gland and carries taste-fibers to the gustatory nerve. A lesion between here and the geniculate ganglion gives absence or alteration of taste on the corresponding half of the tongue anteriorly, and dryness of the mouth. Just within the foramen the nerve sends branches to two muscles of the external ear. It supplies motion to the entire side of the face, the stylo-mastoid muscle, and the posterior belly of the digastric. A lesion at any point in its course gives rise to paralysis of the entire corresponding half of the face.

A lesion in the brain itself, internal to the nucleus in the fourth ventricle, affects only the muscles about the lower half of the face, leaving the eye normal; while an extra-nuclear or peripheral lesion involves the eye also. In intra-nuclear lesions voluntary power is more affected than emotional movements, and there is no degenerative reaction or atrophy of muscles, thus following the rule for cerebral paralysis. In peripheral lesions we have a more or less marked reaction of degeneration in nerve and muscle and muscular atrophy. I propose to speak only of extra-nuclear or peripheral lesions.

According to the examination of my cases, the commonest cause of facial paralysis is cold, there being eighteen cases in which some form of exposure, followed by pain and soreness in the side of the face, had preceded paralysis. Common examples of this cause are the following: sleeping under an open window; sitting, in winter, at work by a loose sash, through which the wind blows; riding in cars in a draught after exertion; sleeping out after a debauch. Here a neuritis or a perineuritis exists within the Fallopiian canal, or near the exit of the nerve from the canal. Paralysis generally occurs within twenty-four hours from the time of exposure, the patient often going to bed well and waking in the morning with a "crooked face."

<sup>1</sup> Read at the December meeting of the Alumnae Association of the Women's Medical College of the New York Infirmary.

The second cause, in point of frequency, is disease of the middle ear, with or without abscess. I find records of twelve cases in which for weeks or months there had been inflammatory action going on in the middle ear or mastoid cells, and pressure from swelling or extension of inflammation had finally reached the facial nerve and caused paralysis. In three of these cases the paralysis followed operations. In Case XI there had been an operation for mastoid disease. Case II followed removal of carious bits of bone from the external auditory meatus. Case LII had been entirely deaf for some years. She was advised to have the ossicles removed, in the hope of giving her slight hearing, and was told that the operation could not do her any harm, and benefit might be gained. Great was the disgust of the young lady to find her beauty spoiled by a complete paralysis of the side of her face corresponding to the operation. This shows how careful operators should be in their operations in so small and delicate a cavity as the tympanum.

Two patients had fracture of the skull. Case XXV fell from a height of three stories and sustained a fracture of the skull, which resulted, among other things, in facial paralysis. Case VI was a marble-worker. While standing near the wall of the yard several slabs of marble which leaned against the wall fell over, knocking him down and fracturing the skull and left arm. He was unconscious in the hospital for some days, and on regaining consciousness was told that his face was crooked. This case was a very marked one at first, and has improved very much after six months of careful electric treatment. He can now close the eye and make nearly all the lip-movements normally.

Case IX followed the formation of an abscess on the side of the head resulting from a blow above the ear. The abscess was not opened until some time after suppuration occurred. The pus probably burrowed downward. Neuralgia came on, followed by trismus and facial paralysis from involvement of the facial nerve in front of the ear. There was at no time any trouble with the internal or middle ear, and the suppuration was entirely external to the skull.

Case V gave a clear history of syphilis of some months' duration. He had severe head-pain for several weeks, then suddenly-occurring deafness in the left ear and left facial paralysis. The auditory and facial nerves were probably implicated together in the interval auditory meatus by a specific inflammation.

Case XIX had double facial erysipelas, affecting both auricles and extending up into the meati auditorii. At the end of three weeks deafness and facial paralysis appeared on the right side, and after three days the same occurred on the left. The re-

action of complete degeneration was present on the left side, and no improvement resulted from treatment, while on the right the reaction showed less marked degeneration, and partial recovery occurred. Here, as in the last case, the nerves of hearing and of motion to the face must have been implicated in their course together. The deafness was complete and permanent on both sides.

In twelve cases no cause could be found for the occurrence of the paralysis; there were no prodromal symptoms, and the paralysis appeared suddenly, the patient going to bed well and waking in the morning with the typical symptoms.

There seems to be no preference for either side of the face, cases being nearly equally divided between the right and left sides. Two cases were bilateral—one from facial erysipelas, and one from double-ear disease. The cases occurred about equally among males and females, and occasionally among children. Five of my cases were in children: one in a girl of nine years, following middle-ear disease; three in infants, with unknown cause; one in a case of anterior poliomyelitis, the nucleus of the seventh nerve being affected as part of the prolongation of the anterior columns of the cord upward.

**SYMPTOMS.** The affected side of the face is immovable and expressionless, the eye widely open without power to raise the lower lid; the upper lip and cheek cannot be drawn up or the forehead wrinkled; all the lines of expression are smoothed out of the face, and the angle of the mouth droops. The opposite side overacts, drawing the mouth away from the paralyzed side. This condition is very marked during speech and attempts to smile or weep, the flat and expressionless side contrasting forcibly with the contorted healthy side. The unclosed eye becomes red and irritated from the effects of wind and foreign particles, and from the dryness produced by inability to close it, and I have seen one case of ulcer of the cornea result. The labials cannot be pronounced correctly, from paralysis of the lip-muscles, and the patient cannot whistle or blow out a candle, from implication of the orbicularis oris. Food lodges in the cheek from paralysis of the buccinator, and the naris does not dilate in forced inspiration. Patients often complain that the face was swollen when the trouble began, but this swelling is only apparent, owing to the drooping and flattening of the cheek. Prodromal symptoms, such as pain, neuralgia, soreness of the side of the face, tinnitus and deafness often occur, especially when the cause is exposure or ear-disease. Deafness occurred in nineteen cases, twelve of which resulted from middle-ear disease.

Gowers throws considerable doubt on the occurrence of paralysis of the palate from disease of the facial nerve. He examined over one hundred

cases without finding one undoubted case of paralysis of the palate. I find in my fifty-two cases no record of paralysis of the palate. One case only is reported as having difficulty in swallowing, but with the arches of the palate even. Cases V and XIV must both have had lesions of the nerve above the point of emergence of the fibers for the palate, yet neither complained of any symptoms referable to the palate.

I find two cases in which there was alteration of taste due to a lesion of the chorda tympani nerve. Case XXIII had a metallic taste in the half of the tongue on the paralyzed side. Case LII had absence of taste on the anterior part of the tongue on the paralyzed side. Thus we see that of these fifty-two cases, all but three were probably produced by inflammations in the lower part of the Fallopiian canal or on the side of the face just external to the canal.

Before passing on to the treatment and its results, let me notice a few of the more interesting cases:

CASE XLVIII.—C. H., a gravel-roofer, thirty-nine years old, has always been a perfectly healthy man; he remembers no sickness, and denies venereal diseases, but was a user of alcohol and tobacco to excess up to nine years ago. He is at present the picture of health. Eight years previous to his coming under observation he began to have facial convulsive tic; the spasm involved the whole left side of the face. At first it was only occasional, and involved only part of the face; later it became very annoying, being constant even during sleep. He came first to the Eye Department, and had a small amount of hypermetropia corrected by glasses, with benefit to the tic for a few days. The spasm returned as annoying as before, and he was brought to the nervous department. After observation for one week his nose was examined, and a spur found on the left side of the septum. This was removed, with the same temporary benefit as before. However, he soon returned unimproved. He was now told that the operation of nerve-stretching of the seventh nerve would probably give him at least temporary relief, causing however facial paralysis. He gladly agreed to the operation, and on January 5, 1893, Dr. Terriberry made an incision below the ear, and with a strabismus-hook stretched the nerve, using about five pounds of force, and exerting it until the faradic current applied to the nerve gave no contraction in the facial muscles. There resulted complete peripheral facial paralysis and complete relief from the tic, with which the patient expressed himself very much pleased. His facial paralysis ran the usual course of a mild type; the reaction of degeneration was never marked, the faradic current giving slight contraction in the muscles through the nerves, and galvanism giving contraction with normal formula. In four months voluntary control was normal in the face. At present, more than a year from the operation, the tic is still absent. During the past month he has had spasm for a few seconds several times. Up to last month no tic occurred at all.

CASE XV.—Margaret W., sixty-six years old, a German widow, had had four children, all of whom were living and well. She had never had any miscarriages, had always been well, and remembered no illness other than normal childbirth. She gave no history of syphilis, and the family history is of no importance. She was first seen in October, 1891. In the previous January she noticed a "pimple" on the left cheek, near the angle of the jaw, which soon became a patch of vesicles filled with clear fluid. They remained thus for two months, then broke, discharged a watery fluid, and dried, forming superficial cheesy flat masses covered by thin crusts. She then began to have pain, starting at the seat of the eruption and extending over the side of the face and upon the scalp, but not involving the infra-orbital region. The pain was not darting in character, but steady, and more of the character of neuritic pain. It became so severe that she was obliged to take large doses of laudanum to obtain any relief or sleep. Pressure over the exit of the branches of the fifth nerve showed no tender spot, and manipulation of the face gave no increased pain. Six months after the appearance of the vesicles, and four from the commencement of the pain, a complete left-sided facial paralysis occurred of Bell's type. This was later followed by trismus, and the patient was unable to separate her teeth more than half an inch, or to chew solid food. There was no anesthesia or analgesia of any part of the face or head. When I first saw her the face was much drawn to the right, showing the completeness of the paralysis, there being absolutely no resistance by the muscles of the left half of the face. The skin of the affected side was shiny, and none of the lines of expression remained. There was no paralysis of the palate or alteration of taste. Sight and hearing were normal, as well as the sense of smell. The eye-muscles were normal. At this time the eruption formed a patch the size of a half-dollar over the cheek just above the angle of the jaw. It was dry, flat, whitish, with pigmented spots; showed no ulceration and no discharge; was slightly raised above the surface of the skin, and had a slight, red areola; it was not painful or tender. There were no enlarged glands in the neck. Aside from the pain and facial paralysis the patient was well, though worn by pain and fasting.

Dr. G. T. Jackson presented the case to the New York Dermatological Society. No member ventured a diagnosis of the skin-lesion.

Dr. A. R. Robinson said he had seen a similar eruption in a case of cerebral hemorrhage.

Dr. Piffard suggested that it might be tuberculous, and Dr. Bulkley thought it well to try anti-syphilitic treatment. Accordingly the cheesy superficial mass was examined for tubercle-bacilli, with negative results.

The patient would not permit the removal of a portion of the skin for examination. She was then put on mixed treatment, the solutions increasing in strength, as recommended by Dr. Bulkley. At the same time aconite was used for the pain, with slight relief.

Dr. William R. Birdsall examined the case with reference to the nervous lesion, and expressed the



opinion that we could locate no lesion other than that of peripheral facial paralysis, the seventh nerve being affected within the aquæductus Fallopii. The fifth nerve was not implicated in all of its branches, and there were no symptoms of a lesion of other cranial nerves. He thought that the pain and trismus were reflex symptoms.

The members of the Dermatological Society had concurred in calling the skin-lesion a "neurosis." The reactions of complete degeneration in the nerve and muscles of the face were found on testing with electricity.

Galvanism was applied to the facial muscles. At the end of six weeks of anti-syphilitic treatment Dr. Bulkley considered the skin-lesion to be improved. It had dried some, and in parts seemed to have been absorbed. This seemed to me to be no greater change than had occurred in the time before this treatment was instituted. There was now a chain of enlarged lymphatic glands extending from the angle of the jaw to the clavicle. In other respects the patient remained unimproved, the facial paralysis remaining the same, and the pain constant and intense.

I now lost sight of the woman, and learned later from her daughter that she had gone to an institution in New Jersey, where she remained until her death, in August, 1892. At the time of her death all the conditions present when I last saw her had remained the same, and when her daughter last saw her "there were sores all over her face." The death-certificate stated that she died of "paralysis of the face and throat," but the daughter was given to understand that she had "cancer." I could not learn whether an autopsy was held—in all probability there was none. Thus the later history did not clear up the diagnosis of the cause of her various symptoms.

THE PROGNOSIS AND TREATMENT of cases of facial paralysis depend much on the amount of damage to the nerve that has occurred. A clue to the results to be obtained is given by the electric reactions found in the nerve and muscles affected. These cases may be divided into three classes:

1. Mild cases, which recover in a few weeks. Here, at the end of ten days both muscle and nerve contract to faradism and galvanism, the latter giving normal formula, *i. e.*, C C C > A C C.

2. More severe cases, which recover for the most part completely after from four to eight weeks' treatment. Here there is diminished reaction to faradism and galvanism in the nerve; in the muscles increased excitability to galvanism and A C C = or > C C C.

3. Severe cases, which recover only partially after months of careful treatment. Here there is no contraction to galvanism or faradism in the nerve, while there is loss of faradic excitability in the muscles with reversed formula, and increased excitability to galvanism—in other words, complete degeneration-reaction.

These cases are followed by contracture of the facial muscles and fibrillary twitchings. I am now treating a case in which after five months' treatment the connective-tissue bands in the cheek feel like a band of iron when the finger draws upon them within the mouth. Another case complained of facial tic following paralysis.

Voluntary power begins to return before the electric reactions become normal, and the eye recovers more completely than the mouth. This is explained by Gowers as due to the intimate connection between the innervation of the orbicularis palpebrarum on the two sides, the nerve-power regenerating from the sound side.

In my fifty-two cases electric treatment alone was used, with the following results:

Complete recovery is recorded in eleven cases. Of these degeneration-reaction was slight in five cases, moderate in four, and marked in one. Treatment was begun early in all of these cases and continued for from two to five months. We use faradism in all cases in which it gives any reaction in muscle or nerve, applying a flat sponge on the back of the neck or palm of either hand, and an interruptor over the facial muscles. In many cases a reaction will be found by using a laryngeal electrode inside the cheek when none is produced with the sponge on the skin. We also use galvanism in these cases, and in all those that do not respond to faradism. For the galvanic current the electrodes are used in the same positions, the pole which gives strongest contraction being rubbed over the muscles in electric massage, or an interruptor is used. A sufficient current is used to produce moderate muscular contraction, and which at the same time is easily tolerated by the patient. The application is made from five to ten minutes three times a week. In private practice electricity may be used with advantage every day. Gowers states that electricity produces no effect on the regeneration of the nerve, but keeps up the tone of the muscles and prevents atrophy, so that as soon as any nerve-power is regained the muscles are ready to act. It is very noticeable how electricity wakes up contraction and voluntary power in neglected cases after its use for a week or more.

In twenty-seven cases improvement more or less marked is recorded. In ten cases the improvement was marked, amounting almost to cure. Of these, three showing marked degeneration-reaction received treatment from three to eight months and were nearly cured; while four others with moderate degeneration, who should have recovered under treatment, but neglected it, had only slight improvement. Two with slight degeneration, but neglecting treatment, only partially recovered.

Of the sixteen cases that were only slightly improved, most went entirely without treatment or



neglected it until so late that marked benefit could not be secured.

To sum up, our work indicates that electric treatment should be begun early and carried out regularly and persistently for from two to eight months, or until a cure is secured. As soon as marked contracture has occurred, the use of electricity should cease, as it then only intensifies the drawing of the face to the paralyzed side. The results of such early and persistent treatment will give a greater number of cures, and a greater degree of improvement in other cases, than will result without the use of electricity. In such a lesion the cosmetic effect is highly important to the patient, as well as the rapid return of power to cover the conjunctiva, to properly control the food, and to pronounce the labials.

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### SHALL THE TERM AUTO-INFECTION BE RETAINED?

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THE subject of auto-infection (the endogenetic origin of puerperal fever, as Barnes now prefers to speak of it) is prominently before the profession again, both in America and in Europe. In the New World it has been brought forward by Williams in an admirable paper,<sup>1</sup> and in the Old World by the address of Robert Barnes before the British Medical Association. Williams holds that auto-infection is possible in a large proportion of cases, but admits that its actual occurrence is very rare. Barnes, on the other hand, while appearing to doubt its very existence, yet proceeds to describe it, and is of the opinion that it occurs frequently. These authorities, however, differ essentially in their conception of what endogenetic puerperal fever is. Barnes holds that it may be caused by a chill or other abnormal condition of the system, while Williams strictly maintains its bacteriologic origin. A vast amount of the doubt and difficulty that now surround this subject will be cleared away if we can accept the latter theory. And it appears to me, after careful consideration of the subject, that not only is it permissible to hold this theory, but that the evidence produced compels the most unequivocal acceptance.

This being the case, the definition of puerperal disease is easily given. Puerperal infection (following Williams) is simply the infection that leads to surgical fever. It is produced by the same micro-organisms and manifests itself in similar ways. "In

other words, puerperal infection is wound-infection." As a corollary to this it may be stated that there can be neither wound-infection nor puerperal infection without the presence of pus-producing organisms. It follows from this again that no matter what the condition of the patient may be, no matter how much fever, for instance, may be found in a patient after confinement—if that fever be not caused by absorption of pus-producing organisms—then that fever is not true puerperal fever.

For the purposes of this article it will be unnecessary to go over the bacteriology of the subject further than to say that the principal microorganism causing puerperal fever is the streptococcus pyogenes, while in rare instances the staphylococcus, the gonococcus, and even the colon-bacillus may produce it.

The exclusively bacterial origin of puerperal disease being admitted, the question of auto-infection will depend entirely upon the presence of the organisms named in the genital canal before confinement. For if there be no pus-producing organisms in that canal, there can be no endogenetic puerperal fever.

Those who have not followed this subject of recent years will not be inclined to assent to this proposition. For many causes have been given for auto-infection, and the older physicians will not feel disposed to cast them all aside at once. The logic of events, however, will necessitate the theory of all of these causes to be abandoned. The following is a condensed list taken from a recent standard work on obstetrics:<sup>1</sup>

1. Absorption of effete matters (not pus-producing).
2. Excessive muscular action.
3. Deficiency of the excretory organs.
4. The effects of difficult labor.
5. Decomposition of retained placenta, clots, or lochia.
6. Cold, or exposure.
7. Shock, or emotion.

To state these causes is to show their inapplicability. Not one of them takes into account true infection. Even the portion of retained placenta is not a cause, for any fever caused by its decomposition would be exogenetic in character, not endogenetic. As a matter of fact, these causes are now largely abandoned, even by those who so recently advocated them. Barnes himself seems to have relegated them to obscurity—with one exception. That exception (as we shall see further on) has to do with deficiency of excretory power.

If, therefore, these authorities no longer insist on the foregoing as causes, everyone will soon cease to think of them as being, in any case, sources of origin of endogenetic puerperal fever. These causes

<sup>1</sup> "Puerperal Infection considered from a Bacteriological Point of View, with special reference to the Question of Auto-infection," by J. Whitridge Williams, M.D. American Journal of the Medical Sciences, July, 1893.

<sup>1</sup> Galabin's Midwifery, 1886.

being eliminated, only one possible source of auto-infection remains, and that is, as stated, the presence of pathogenic organisms in the canal before confinement.

That streptococci (and other pus-producing organisms) do exist in the canal before confinement is fully admitted. They are present in many pregnant, and apparently healthy, women. Williams remarks in regard to this subject: "Pathogenic organisms may exist in the genital tract during pregnancy without giving rise to any symptoms whatever, and only exert their influence during labor or the puerperium, when the wounds which follow labor will afford abundant opportunity for their absorption."

Nothing can be more plain than this. Bacteriologists believe that the pathogenic microorganisms in the canal produce no harm till the surface is lacerated during labor. Then they are absorbed, the result being puerperal fever; and this, because the streptococcus dwelt in the body of the patient before confinement, they consider to be auto-infection. But is such a deduction justifiable? That streptococci are present in the canal all will admit. But they are foreigners—coming from some external source—never originating in the canal, and never becoming part of the body of the bearer. We must deny, then, that these foreigners can ever produce endogenous puerperal fever. On the other hand, any fever caused by them would be strictly exogenous—as truly so as though these same microorganisms infected a wound on the external surface of the body. So plain does this appear to be, that it is misleading to use the term auto-infection in such a case.

But, leaving aside this objection to the term, a more important inquiry is: Are those streptococci in the canal ever a cause of puerperal fever—in other words, are they ever infective? This question has not yet been answered in the affirmative. But can it be answered in the negative? We believe it can. We believe that the streptococci in the canal are not infective unless made so by external assistance. If this position can be maintained, it will be seen that a case of endogenous puerperal fever is an impossibility. As tending to support the position taken I submit the following records from my own practice.<sup>1</sup>

CASE I.—Mrs. M., multipara, was a healthy and vigorous subject. Her surroundings were excellent and the nursing unexceptionable. To accomplish delivery it was found necessary to pass the hand into the vagina, the fingers into the uterus, and to

use the forceps through the os. Convalescence was uninterrupted. The pulse and temperature were normal throughout, the temperature never rising above 99°. The record was kept until the ninth day.

CASE II.—Mrs. G., primipara, was a healthy, strong young lady. Her surroundings were good. The hand had to be introduced as in the first case, and the forceps used high up, passing into the uterus. Recovery was excellent. The pulse and temperature were normal throughout. In this case the perineum was considerably lacerated, but was drawn together immediately by carbolyzed silk sutures.

CASE III.—Mrs. M., a multipara, with good surroundings, had fairly good health at confinement. The head was well down before the forceps was used, but it was passed into the uterus. The temperature never went above 99°, and an excellent recovery followed.

CASE IV.—Mrs. A., a multipara, had poor, uncleanly surroundings. The hand was passed into the vagina. There was a breech-delivery. The woman made a good recovery, the temperature never rising above 100°.

CASE V.—Mrs. O'N., was a multipara. The hand was passed into the vagina and the fingers into the uterus. The forceps was used through the os at the superior strait. Recovery was a little slow, but good. The temperature never rose above 100°.

CASE VI.—Mrs. S., a primipara, was a healthy young lady, whose surroundings were excellent and she was well nursed. The hand was introduced into the vagina, the fingers through the os, and a breech-presentation diagnosed. After a considerable time delivery was assisted by a soft fillet. All efforts to deliver the head were futile at first; asphyxia threatened, and to save life the forceps was rapidly applied and the head extracted. A considerable laceration was the result, which was stitched. The temperature and pulse remained normal throughout.

CASE VII.—Mrs. H., a multipara, was far from strong. The building in which she lived was a portion of a stable. It was cleanly kept, but the odor of manure was manifest through every room of the house. The hand had to be introduced into the vagina as in the other cases, the forceps being passed into the uterus. Recovery was good, the pulse and temperature remaining normal.

CASE VIII.—Mrs. H., a multipara, was a woman of nervous temperament, stout, with flabby and soft flesh. The anus opened into the vagina, all stools being extruded through the vulva. At confinement the whole hand was introduced into the vagina, and the fingers and instruments into the uterus. In this case, interesting by reason of the anatomic peculiarity, the variations of pulse and temperature were noted with the greatest care. The pulse and temperature, however, were perfectly normal throughout. The temperature never rose above 99°. The patient got up without permission on the eighth day because she "felt so well."

CASE IX.—Mrs. F., a multipara, was a strong, large woman, the surroundings not being of the best. She

<sup>1</sup> These records cover a period of four and a half months, and include only those in which the labor was severe, those in which, for one reason or another, it was necessary to pass the hand into the vagina.

had miscarriage at three months. Chloroform was given and the hand passed into the vagina, and the uterine contents scooped out by the finger. They were very offensive. The uterus was irrigated with carbolyzed water. This was a case of pre-partum infection, the pulse being 100 and the temperature  $99^{\circ}$  on the day of first attendance. The temperature went up to  $99\frac{1}{4}^{\circ}$  on the third day, afterward remaining at  $99^{\circ}$  until attendance ceased.

CASE X.—Mrs. M., a primipara, was a healthy young lady. The surroundings and attendance were excellent. At confinement the hand was introduced, the fingers entering the uterus. The forceps was applied at the superior strait. There was a small laceration, united by suture. I may note that the child was stillborn, and the breasts, as a consequence, were rather troublesome. In this case I give the daily record: September 8th, pulse 70, temperature  $98\frac{3}{8}^{\circ}$ ; 9th, pulse 88, temperature  $98\frac{1}{2}^{\circ}$ ; 10th, pulse 88, temperature  $98\frac{1}{2}^{\circ}$ ; 11th, pulse 88, temperature  $98\frac{1}{2}^{\circ}$ ; 12th, pulse 96, temperature  $99^{\circ}$ ; 13th, pulse 84, temperature  $98\frac{3}{8}^{\circ}$ ; 14th, pulse 72, temperature  $98\frac{1}{2}^{\circ}$ ; 16th, pulse 72, temperature  $98\frac{1}{2}^{\circ}$ ; 18th, pulse 64, temperature  $98\frac{1}{2}^{\circ}$ .

CASE XI.—Mrs. I., a multipara, was not strong; her surroundings were clean. The hand was passed into the vagina, the fingers into the uterus, the forceps also into the uterus. In this case the temperature did not vary on any day more than one-fifth of a degree above or below the normal line. The pulse also was normal throughout.

In all of these cases daily records were kept of the pulse and temperature.

Evidence such as the foregoing, though negative, is strong. Presumably in many of these cases the streptococci were present in the canal. And yet, although the labors were, as a rule, severe, although examinations were frequently made, although the instruments were passed into the uterus itself, and air necessarily freely admitted, in none of them were the streptococci virulent. Does not this point to the conclusion that they will not become infective without extraneous assistance?

But in addition to many such records which could be produced by the obstetricians of this continent, let us look at some investigations by European experts. Merman (quoted by Williams) in 900 cases did not douche the vagina, yet had so little fever that he thinks there is no room for the idea of auto-infection. Leopold, of Dresden, in a series of cases had only one-fifth of 1 per cent. (1 in 500) in which the fever could have been due to auto-infection. Surely such records go far to prove that the streptococci of the canal will not of themselves become infective.

Again, the remark by Smyly, of Dublin, at the late meeting of the British Medical Association, confirms what has already been said. This was to the effect that women do best who are delivered on the street. In other words, women are not pos-

sessed of infective streptococci. The fact is, that Nature has wonderfully provided against danger of infection through the birth-canal. In the first place, streptococci are not found in the majority of women, owing, no doubt, to the fact that the fluids of the canal destroy these organisms. In a considerable number of women, however, streptococci are found, but appear to have lost their infective power. Then at confinement, even those in the canal are swept away by the fluids, or forced out by the head or the placenta. After confinement, the canal is kept freed by the abundant outflowing lochia—the lochia being usually free from all pus-producing organisms.

It would appear, then, that Nature has done her part well. She has made every provision against auto-infection, and it would be a libel upon her to say that she had provided for the possibility of it.

But here we see an illustration of man's power for either good or evil. If his assistance be needed, and he refrains from introducing deleterious matter into the vagina, he does good, and no fever results. If, on the other hand, the woman receives noxious matter from his finger or instrument, then what evil may ensue! As to what the deleterious matter may be which is introduced, while occasionally we know what it is, in the great majority of cases we do not know. Williams says in regard to this: "It appears then that beside the presence of micro-organisms, certain conditions, of which we are yet ignorant, are necessary for the production of infection. . . . It is possible that the organisms which grow in the vagina lack (certain) materials, while those which are introduced directly from without possess them."

Whether these materials are products of bacterial life (as Williams seems to think) or other pabulum necessary to produce infection, we know not. Certain it is, however, that man frequently introduces what is necessary to make the bacteria already there infective, or actually introduces infective organisms. The result is true puerperal disease. And how often, after having himself done an evil, does the author of the mischief shelter himself with the statement: "It is a case of auto-infection?"

One word in regard to that form of fever of which Barnes speaks as endogenetic puerperal fever. The first step in this process he holds to be absorption of the materials that normally have to be taken up by the system after confinement. After describing this he says: "So far there is no poison, no sepsis, but the absorbed matter has to be disposed of in one of two ways: 1. Undergoing normal metabolism, it is used up in the formation of new tissue and in the secretion of milk. 2. The residual portion, not so converted, has to be eliminated by the excreting organs. Now suppose that this healthy process is checked, the retained matter, missing its



proper metabolic changes and destination, undergoes other changes of a noxious character, engendering fever. Here we have the simplest types of endogenous septicemia."

From this description it is evident that no pus-producing organisms have produced this form of fever. It is produced only by deficiency of excretory power. This condition may be caused by a chill, or other means. Now, whether or not there be room for dispute as to what form of fever this is, it can at least be positively stated that it is not true puerperal fever, which can only be originated by the absorption of streptococci or other pus-producing germs. We believe, then, that auto-infection in any form does not exist, and that, therefore, the term should not be retained.

It may be asked whether any practical benefit will result from the elimination of the word from the obstetric vocabulary. Among other benefits, its elimination will entirely prevent all pre-partum douching of the vagina. For if there be no auto-infection, this measure of "meddlesome midwifery" would no longer be used. It is useless to remove non-pathogenic organisms.

In the second place, the absence of this term should lessen the amount of careless midwifery. So long as it is retained, so long will careless obstetricians have a way of escape from the consequences of their own want of care. That it is sometimes impossible for the attendant to prevent puerperal fever all will admit. He can, however, avoid conveying streptococci or the pabulum necessary for their support into the canal on his hands or instruments. And if the patient is not thus infected, it is seldom indeed that she will be infected, either from the atmosphere, erysipelas, or other cause. Auto-infection being non-existent, the obstetrician should not have the term behind which to shelter, and once let it be fully understood that auto-infection does not exist, the stress of circumstances will certainly tend either to improve the methods or else lessen the practice of all obstetricians who have not fully equipped themselves for the responsibility of their important duties.

#### A PROPOSAL IN THE INTERESTS OF HIGHER MEDICAL EDUCATION.

BY BAYARD HOLMES, M.D.,  
OF CHICAGO.

THE annual session of our medical schools for 1894 is drawing to an end. A few educators are planning for the new year. Many are dissatisfied with the results of the past, with the methods now in vogue, with the traditions and the present practices of medical teaching. These are the ideas of one of the dissatisfied, of one who believes medicine

deserves better things from education, of one who believes in the possibility of improvement. Cannot one or several of our best medical schools adopt such a program as the following:

1. Admit only such students as are already admitted to their respective junior classes in the regular college course; and have in addition credits for (1) chemistry, theoretic and analytic; (2) for biology, one year of laboratory work; and (3) a reading knowledge of French and German.

2. Give to each student, when he completes *two years' work* in the medical course, the A.B. degree.

These requirements for admission and the privilege of the A.B. degree on the completion of two years' work are rational concessions. Any one of the universities for which this is written would have students enough, and, with a proper *quality* of medical teaching, the A.B. degree would not be cheapened thereby. It must not for a moment be supposed that the quality of the first two years of the medical course as now conducted is worthy of such recognition, but the material of that course is not wanting in educational powers. It needs simply better teachers and better methods.

The reason the medical man should begin his professional study so soon depends upon the fact that so much time is required for hospital practice, for travel abroad, and for apprenticeship practice before the real work of the physician's life begins. It is for these reasons that the university is asked for this just concession.

The university body should have no less direction and control of the medical school than it has of the school of history.

Should anyone urge that the poorer communities and the sparsely settled districts need doctors, but cannot command men of such culture and education as are here proposed, he must be reminded that the supply of men fitted for these communities now greatly exceeds the demand, and that there will still be left one hundred and fourteen medical schools supplying this field.

The reading of French and German is necessary to an improvement in the method of teaching as proposed in the next paragraph.

3. Abandon the traditional lectures, which now, by monopolizing, disgrace our medical teaching, and introduce the seminar and the individual laboratory method into every department.

This may need a word of explanation. Lectures are proper for such instruction as is otherwise unattainable, for general instruction on topics of the moment, and for laying out work. Students should have, for example, laboratory and recitation work on the bones. This should be accompanied by a very few lectures and by seminars as often as once a week for each student. For such work *material*,

a library, and a teacher (not a lecturer) are necessary. An amphitheater is not necessary, but a laboratory, roomy, well equipped with desks, lockers, and instruments, is necessary. The students should follow a syllabus and use pencil, paper, measures, saw, scales, and many other simple instruments.

Anthropometry should be begun on the students themselves. It is not necessary or desirable that all students should do the same work at the same time. Each student should advance through the work required in his outline as slowly or as rapidly as his abilities and industry permit. The teacher should satisfy himself that each unit of the work is done by any student and the educational object attained before credit is given him. This is contrary to the traditions of our medical schools and to the practice of English and Scotch colleges, but it is the only way in which any of our students learn anatomy now. I have seen a hundred students working quietly and industriously in a microscopic laboratory on this very plan—no bustle, no confusion, nothing but the orderly noise of earnest work. This method is equally adapted to physiology, to materia medica, to surgical pathology, to clinical surgery, to medicine, to clinical medicine, and to operative surgery. All small clinics, and hospital clinics even, should be conducted on the seminar method, *i. e.*, individual research and criticism in small classes.

It would be desirable to tear out the amphitheaters (all but one in each college), upon which we now pride ourselves, discharge the medical orators and rhetoricians, and secure in their places class-rooms, libraries, and teachers of medicine.

It may be objected that this method is not adapted to large classes. It is not adapted to classes at all. It is adapted to students and to almost any number. It is true that by this method a teacher could do his subject and his pupils justice, only by limiting the number of students, but the same limitations apply to the rhetoric method, if good work is insisted upon. Many of these objections are removed by the next suggestion.

4. Divide the school year into short terms of three months each, at the beginning of any one of which the student may begin his work, and at the end of any one of which let him receive his credits or his degree.

The advantages of such a division of the year are already recognized in the under-graduate departments. To an executive educator, the advantages are evident. The medical students are as much entitled to these advantages as the students of Hebrew or political economy. Smaller laboratories will accommodate a class, if one section does the work one term, and another section the next term. A student who fails to graduate now at the appointed spring commencement is disgraced. With the short-

term plan, he would not be tempted to hurry on and slight his work, for he could graduate three months later. One teacher can carry through three times as many students equally well on the short-term plan as he can if his work is extended over the whole year.

5. Make the course of study conform to such educational requirements as prevail in other departments of the university, *i. e.*, abandon the iron-clad course of study and substitute a liberal margin of elective work under the supervision of a dean. By this means students would be able to pursue extensive studies in limited fields with a minimum of work in all other departments and thus add greatly to their efficiency as specialists, as scholars, as teachers, or as investigators.

It may be objected that, conducted under such plans, the medical school would not pay. In answer, it is suggested, that there is no more reason why a medical school should pay, than there is why a school of sociology should pay. It is not necessary and it is unjust to conduct a *quasi* medical school so as to earn a few thousand dollars for the university, to be expended in other departments or work.

It may be objected that the present faculties are not able, with their poor pay and their other arduous duties, to conduct such a course of instruction, but it must be remembered that the resources of the community are not yet entirely exhausted.

If medical schools are *educational* institutions and not *business* adjuncts, why should not such modest suggestions as these be even surpassed in forthcoming announcements? It is only by making the medical schools the peers of the best-conducted educational institutions that endowments for them can be expected. It is as absurd to have a medical college attached to a university, as many of them are attached to-day, as it would be to have a special business college in the same relation. In this matter the profession has a right to expect such institutions as, *e. g.*, Harvard, Columbia, and the University of Pennsylvania, to lead.

There are reasons, however, for believing that they will not lead unless they begin soon. The University of Minnesota has during the past year secured a support which makes its future development, under ordinary management, secure. Michigan has now taken advanced ground. But the most hopeful trend of medical education lies in the coöperation of the State Board of Health and the medical school. The University is made to feel the needs of the State Board of Health and it attempts a larger amount of laboratory teaching of State medicine and hygiene than is offered elsewhere. The State also possesses many other functions which will, no doubt, soon be utilized in the

instruction of medical men. The hospitals for the insane, the institutions for the blind, those for the deaf, those for the feeble-minded, the jails and prisons ought to be open to university students as laboratories for investigation and study. Such laboratories none but State universities can ever possess, and such student-supervision would be more powerful for good than a State charities aid society.

## ORIGINAL ADDRESS.

### THE ARMY SURGEON.<sup>1</sup>

BY WILLIAM OSLER, M.D.,

PROFESSOR OF MEDICINE, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MD.

GENERAL SCHOFIELD, MR. SURGEON-GENERAL, PRESIDENT ALDEN, AND PROFESSORS OF THE FACULTY: At the outset I am sure you will permit me, on behalf of the profession, to offer to the Army Medical Department hearty congratulations on the completion of the arrangements which have made possible this gathering. With capacities strained to the utmost in furnishing to students an ordinary medical education, the schools at large cannot be expected to equip army surgeons with the full details of special training. A glance at the curriculum just completed brings into sharp relief the disabilities under which previous classes must have proceeded to their labors, the members of which have had to pick up at random—in many cases have probably never acquired—the valuable knowledge traversed in the lectures and laboratory exercises of the session. But greatest of all the advantages of an army medical school must be counted the contact of the young officers with their seniors, with the men under whose directions they subsequently have to work. In comparison with their predecessors, with what different feelings and ideas will the men before us enter upon their duties in the various posts to which they have been assigned. Instead of hazy notions—perhaps to one fresh from the Examining Board not pleasant ones—of a central authority at Washington, of a Yama enthroned as Secretary of War, and of an exacting Surgeon-General, the young officer who has enjoyed the delightful opportunities of four months' study amid these inspiring surroundings, which teem with reminders of the glories of the corps and of the greatness of his profession, the young officer, I say, must be indeed a muddy-mettled fellow who does not carry away, not alone rich stores of information, but, most precious of all educational gifts, a true ideal of what his life-work should be.

*Members of the Graduating Class:* Though to you it may not, to me it seems peculiarly appropriate that the Surgeon-General should have asked a civilian to make an address on this occasion. With the strictly military aspects of your future life you have made yourselves familiar; of the merits and demerits of the army as a career for a physician you have in the past four months heard very much; but about all subjects there are some questions which are more freely handled by one who is unhampered by too particular knowledge, and this is

my position, I may say my advantage, to-day. For me the Army Medical Department, so far as particulars are concerned, means a library with unsurpassed facilities, the worth of which is doubled by the liberality of its management; a museum in which I have spent some delightful hours; an index-catalogue, which is at my elbow like a dictionary; and the medical history of the late war, particularly the volumes by Woodward and Smart. Further, I have here and there gleaned in my general reading in the history of the profession of this country facts about the corps and its members. I have read the spirited vindication of John Morgan, who may be called the first Surgeon-General, and I am familiar with the names and works of many of your distinguished predecessors who have left their mark in our literature.

But as I write an aspiration of the past occurs, bringing me, it seems, closer to you than any of the points just mentioned, a recollection of the days when the desire of my life was to enter the India Medical Service, a dream of youth, dim now and almost forgotten—a dream of "Vishnu land, what Avatar!"

Speaking, then, from the vantage ground of my ignorance, let me tell you briefly of the opportunities of the life you have chosen. First among your privileges I shall place a feature often spoken of as a hardship, viz., the frequent change from station to station. Permanence of residence, good undoubtedly for the pocket, is not always best for wide mental vision in the physician. You are modern representatives of a professional age long past, of a day when physicians of distinction had no settled homes. You are Cyprid larvæ, unattached, free-swimming, seeing much in many places; not fixed, as we barnacles of civil life, head downward, degenerate descendants of the old professional Cirripeds, who laid under contribution not one, but a score of cities.

Without local ties, independent of the public, in, while not exactly of, our ranks, you will escape many of the anxieties which fret the young physician—the pangs of disprized worth, the years of weary waiting, the uncertainty of the effort; and perhaps those sorer trials inevitable in an art engaging equally heart and head, in which, from the very nature of the occupation, the former is apt—in finer spirits—to be touched with a grievous sensibility. In change, that leaven of life denied to so many, you will find a strong corrective to some of the most unpleasant of the foibles which beset us. Self-satisfaction, a frame of mind widely diffused, is manifest often in greatest intensity where it should be least encouraged, and in individuals and communities is sometimes so active on such slender grounds that the condition is comparable to the delusions of grandeur in the insane. In a nomad life this common infirmity, to the entertainment of which the twin sisters, Use and Wont, lend their ever-ready aid, will scarcely touch you, and for this mercy give thanks. And while you must, as men, entertain many idols of the tribe, you may at least escape this idol of the cave. Enjoying the privilege of wide acquaintance with men of very varied capabilities and training, you can, as spectators of their many crotchets and of their little weaknesses, avoid placing an undue estimate on your own individual powers and position. As Sir Thomas Browne says, it is the "nimble and conceited heads that never looked a degree beyond their nests that tower and plume themselves on

<sup>1</sup> An address delivered at the closing exercises of the Army Medical School, Washington, D. C., February 28, 1894.



slight attainments," but "heads of capacity and such as are not full with a handful or easy measure of knowledge think they know nothing till they know all."

*Per contra*, in thus attaining a broader mental platform, you may miss one of the great prizes of the profession—a position in a community reached in length of days by one or two, who, having added to learning, culture, to wisdom, charity, pass the evening of their lives in the hearts of their colleagues and of their kind. No gift of Apollo, not the Surgeon-Generalship, not distinguished position in science, no professorship, however honored, can equal this, this which, as wandering Army Surgeons, you must forego. Fortunate is it for you that the service in one place is never long enough to let the roots strike so deeply as to make the process of transplantation too painful. Myself a peripatetic, I know what it is to bear the scars of partings from comrades and friends, scars which sometimes ache as the memories recur of the days which have flown and of the old familiar faces which have gone.

Another aspect of the life of the Army Surgeon, isolation in some degree from professional colleagues, will influence you in different ways—hurtfully in the more dependent natures, helpfully in those who may have learned that "not from without us, only from within comes, or can ever come, upon us light"—and to such the early years of separation from medical societies and gatherings will prove a useful seed-time for habits of study, and for the cultivation of the self-reliance that forms so important an element in the outfit of the physician. And, after all, the isolation is neither so enduring nor so corroding as might have fallen to your lot in the routine of country practice. In it may be retained, too, some measure of individuality, lost with astonishing rapidity in the city mills that rub our angles down and soon stamp us all alike. In the history of the profession there are grounds for the statement that isolation promotes originality. Some of the most brilliant work has been done by men in extremely limited spheres of action, and during the past hundred years it is surprising how many of the notable achievements have been made by physicians dwelling far from educational centers—Jenner worked out his discovery in a village; McDowell, Long, and Sims were country doctors; Koch was a district physician.

So much depends upon the sort of start that a man makes in his profession that I cannot refrain from again congratulating you on the opportunities enjoyed during the past four months, which have not only added enormously to your capabilities for work, but have familiarized you with life at the heart of the organization of which hereafter you will form part, and doubtless have given you fruitful ideas on the possibilities of your individual development. Naturally each one of you will desire to make the best use of his talents and education, and let me sketch briefly what I think should be your plan of action.

Throw away, in the first place, all ambition beyond that of doing the day's work well. The travellers on the road to success live in the present, heedless of, taking thought for, the morrow, having been able at some time, and in some form or other, to receive into their heart of hearts this maxim of the Sage of Chelsea: Your business is "not to see what lies dimly at a distance, but to

do what lies clearly at hand." Fevered haste is not encouraged in military circles, and if you can adapt your intellectual progress to army rules, making each step in your mental promotion the lawful successor of some other, you will acquire little by little those staying powers without which no man is of much value in the ranks. Your opportunities for study will cover at first a wide field in medicine and surgery, and this diffuseness in your work may be your salvation. In the next five or ten years note with accuracy and care everything that comes within your professional ken. There are, in truth, no specialties in medicine, since to know fully many of the most important diseases a man must be familiar with their manifestations in many organs. Let nothing slip by you; the ordinary humdrum cases of the morning routine may have been accurately described and pictured, but study each one separately as though it were new—so it is so far as your special experience goes; and if the spirit of the student is in you the lesson will be there. Look at the cases not from the standpoint of text-books and monographs, but as so many stepping-stones in the progress of your individual development in the art. This will save you from the pitiable mental attitude of the men who travel the road of practice from Dan to Beersheba, and at every step cry out upon its desolation, its dreariness, and its monotony. With Laurence Sterne, we can afford to pity such, since they know not that the barrenness of which they complain is within themselves, a result of a lack of appreciation of the meaning and method of work.

In the early years of service your advantages will be fully as great as if you had remained in civil life. Faithfulness in the day of small things will insensibly widen your powers, correct your faculties, and in moments of despondency comfort may be derived from a knowledge that some of the best work of the profession has come from men whose clinical field was limited but well-tilled. The important thing is to make the lesson of each case tell on your education. The value of experience is not in seeing much, but in seeing wisely. Experience in the true sense of the term does not come to all with years, or with increasing opportunities. Growth in the acquisition of facts is not necessarily associated with development. Many grow through life mentally as the crystal, by simple accretion, and at fifty possess, to vary the figure, the unicellular mental blastoderm with which they started. The growth which is organic and enduring, is totally different, marked by changes of an unmistakable character. The observations are made with accuracy and care, no pains are spared, nothing is thought a trouble in the investigation of a problem. The facts are looked at in connection with similar ones, their relation to others is studied, and the experience of the recorder is compared with that of others who have worked upon the question. Insensibly, year by year, a man finds that there has been in his mental protoplasm not only growth by assimilation but an actual development, bringing fuller powers of observation, additional capabilities of nutrition, and that increased breadth of view which is of the very essence of wisdom.

As clinical observers, we study the experiments which Nature makes upon our fellow-creatures. These experiments, however, in striking contrast to those of the laboratory, lack exactness, possessing as they do a vari-

ability at once a despair and a delight—the despair of those who look for nothing but fixed laws in an art which is still deep in the sloughs of Empiricism; the delight of those who find in it an expression of a universal law transcending, even scorning, the petty accuracy of test-tube and balance, the law that in man “the measure of all things,” mutability, variability, mobility, are the very marrow of his being. The *clientèle* in which you work has, however, more stability, a less extended range of variation than that with which we deal in civil life. In a body of carefully selected active young men, you have a material for study in which the oscillations are less striking, and in which the results of the experiments, *i. e.*, the diseases, have a greater uniformity than in infancy and old age, in the enfeebled and debauched. This adds a value to the studies of army medical officers, who often have made investigations in hygiene, dietetics, and medicine, so trustworthy and thorough that they serve us as a standard of comparison, as a sort of *abscissa* or base-line. Thus you have demonstrated to us, and to the community at large, the possibilities of stamping out smallpox by systematic revaccination; in civil practice we strive to reach the low rate of mortality of army hospitals in the treatment of typhoid fever and of pneumonia. Many of the most important facts relating to etiology and symptomatology have come from camp or barrack. I often think that army surgeons scarcely appreciate that in their work they may follow the natural history of a disease under the most favorable circumstances; the experiments are more ideal, the conditions less disturbing than those which prevail either in family practice or in the routine of the general hospital. Many of the common disorders can be tracked from inception to close, as can be done in no other line of medical work, and the facilities for the continuous study of certain affections are unequalled. This, which is a point to be appreciated in the intrinsic education of which I spoke, gives you a decided advantage over your less favored brethren.

Your extraordinary range of observation, from the Florida Keys to Montana, from Maine to Southern California, affords unequalled facilities for the study of many of the vexed problems in medicine—facilities, indeed, which in the diversity of morbid conditions to be studied are equalled in no position in civil life. Let me here mention a few of the subjects that may profitably engage your attention. No question is of more importance at present than the settlement, definitely, of the varieties of fever in the West and South. The studies of Baumgarten in St. Louis, and of Guitéras and others in the Southern States, suggest the possibility that in addition to typhoid fever and malaria—the common affections—there are other fevers the symptomatology and morbid anatomy of which still require careful elucidation. In this you will be walking in the footsteps of notable predecessors in the corps, and in the exhaustive works of Woodward and Smart, to which I have already alluded, and which are always available, you will find a basis from which you may start your personal observations. More particularly in this direction do we need careful anatomic investigation, since the symptomatology of certain of the affections in question has much in common with that of the ordinary continued fevers of the North. I may call your attention to the satisfactory settlement of the nature of mountain fever by army

surgeons, and need hardly add that the specimens contributed by Hoff and by Girard to this museum demonstrate conclusively that it is in reality typhoid fever.

In the Southern posts malaria with its protean manifestations presents still many interesting problems for solution, and you will leave this school better equipped than any of your predecessors for the study and differentiation of its less known varieties. With positive knowledge as to the etiology, and a practical familiarity with methods of blood-examination, you can do much in many localities to give to malaria a more definite position than it at present occupies in the profession, and can offer in doubtful cases the positive and satisfactory test of the microscope. The hematuria of the South requires to be studied anew—the filarial cases separated from the malarial, and, most important of all, the relation of quinin to hematuria positively settled.

In the more distant posts, where, so far as the soldier is concerned, your opportunities for study may be limited, you may add greatly to our knowledge of the disorders prevalent among the Indians. More particularly do we need additional information as to the frequency of tuberculosis among them, and its clinical history. One of your number, Dr. Edwards, has already furnished admirable statistics upon this point, but the field is still open and much remains to be done. In this connection, too, you may be able to carry saving knowledge upon the etiology of the disease, and enforce regulations for its prevention. You have only to turn to the Index-catalogue to see how scanty in reality are the facts in the nosology of the North American Indian.

At many posts there will be presented to you the interesting effects of altitude, with problems of the greatest physiologic importance. An excellent piece of work may be done upon its influence upon the red blood-corpuscles, in determining whether, as has been maintained, there is an increase numerically per cubic millimeter, so long as the individual remains in the more rarefied atmosphere. Points remain to be settled also upon the effects of altitude upon the chest-capacity, the chest-measurement, and the heart, and our knowledge is still lacking on questions relating to the influence of high altitudes upon many of the ordinary diseases.

To one of you, perhaps, another peculiarly American disease—milk-sickness—may reveal its secret. Our knowledge of its etiology has not been materially increased since the early papers on the subject, which so well described its symptomatology.

These are but a few of the questions suggesting themselves to my mind, to which, as chance affords, you could direct your attention. In a ten or fifteen years' service, travelling with seeing eyes and hearing ears, and carefully-kept note-books, just think what a storehouse of clinical material may be at the command of any one of you—material not only valuable in itself to the profession, but of infinite value to you personally in its acquisition, rendering you painstaking and accurate, and giving you, year by year, an increasing experience of the sort to which I have already more than once referred.

In what I have said hitherto I have dwelt chiefly on your personal development, and on the direction in which your activities might be engaged, but while you are thus laying the foundation of an education in all that relates

to the technical side of the profession, there are other duties which call for a word or two. In the communities to which you may be sent do not forget that, though army officers, you owe allegiance to an honorable profession, to the members of which you are linked by ties of a most binding character. In situations in which the advantages of a more critical training give you a measure of superiority over your confrères in civil life, let it not be apparent in your demeanor, but so order yourselves that in all things you may appear to receive, not to grant favors. There are regions, *in partibus infidelium*, to which you will go as missionaries, carrying the gospel of loyalty to truth in the science and in the art of medicine, and your lives of devotion may prove to many a stimulating example. You cannot afford to stand aloof from your professional colleagues in any place. Join their associations, mingle in their meetings, giving of the best of your talents, gathering here, scattering there; but everywhere showing that you are at all times faithful students, as willing to teach as to be taught. Shun as most pernicious that frame of mind, too often, I fear, seen in physicians, which assumes an air of superiority, and limits as worthy of your communion only those with satisfactory collegiate or sartorial credentials. The passports to your fellowship should be honesty of purpose and a devotion to the highest interests of our profession, and these you will find widely diffused, sometimes apparent only when you get beneath the crust of a rough exterior.

If I have laid stress upon the more strictly professional aspects of your career it has been with a purpose. I believe the arrangements in the department are such that, with habits of ordinary diligence, each one of you may attain not only a high grade of personal development, but may become an important contributor in the advancement of our art. I have said nothing of the pursuit of the sciences cognate to medicine, of botany, zoölogy, geology, ethnology, and archeology. In every one of these, so fascinating in themselves, it is true that army medical officers have risen to distinction, but I claim that your first duty is to medicine, which should have your best services and your loyal devotion. Not, too, in the perfunctory discharge of the daily routine, but in zealous endeavor to keep pace with, and to aid in, the progress of knowledge. In this way you will best serve the department, the profession, and the public.

Generalities, of the kind in which I have been indulging, though appropriate to the occasion, are close kin, I fear, to the fancies fond, that vanish like the gay motes which float for a moment in the sunbeams of our mind. But I would fain leave with you, in closing, something of a more enduring kind—a picture that for me has always had a singular attraction, the picture of a man who, amid circumstances the most unfavorable, saw his opportunity and was quick to “grasp the skirts of happy chance.” Far away in the northern wilds, where the waters of Lake Michigan and Lake Huron unite, stands the fort of Michilimackinac, rich in the memories of Indian and *voyageur*, one of the four important posts in the upper lakes in the days when the Rose and the Fleur-de-lys strove for the mastery of the Western world. Here was the scene of Marquette's mission, and here beneath the chapel of St. Ignace they laid his bones to rest. Here the intrepid La Salle, the brave Tonty, and

the resolute Du Luht had halted in their wild wanderings. Its palisades and bastions had echoed the war-whoops of Ojibwas and Ottawas, of Hurons and Iroquois, and had been the scene of bloody massacres and of hard-fought fights. At the conclusion of the war of 1812, after two centuries of struggle, peace settled at last upon the old fort, and early in her reign celebrated one of the most famous of her minor victories, one which carried the high-sounding name of Michilimackinac far and wide, and into circles where Marquette, Du Luht, and La Salle were unknown. Here, in 1820, was assigned to duty at the fort, which had been continued in use to keep the Indians in check, Surgeon William Beaumont, then a young man in the prime of life. On the 22d of June, 1822, the accidental discharge of a musket made St. Martin, a *voyageur*, one of the most famous subjects in the history of physiology, for the wound laid open his stomach, and he recovered with a permanent gastric fistula of an exceptionally favorable kind. Beaumont was not slow to see the extraordinary possibilities that were before him. Early in the second decade of the century the process of gastric digestion was believed to be due to direct mechanical maceration or to the action of a vital principle, and though the idea of a solvent juice had long been entertained, the whole question was *sub judice*. The series of studies made by Beaumont on St. Martin settled forever the existence of a solvent fluid capable of acting on food outside as well as within the body, and in addition enriched our knowledge of the processes of digestion by new observations on the movements of the stomach, the temperature of the interior of the body, and the digestibility of the various articles of food. The results of his work were published in 1833, in an octavo volume of less than 300 pages.<sup>1</sup> In looking through it one cannot but recognize that it is the source of a very large part of the current statements about digestion; but apart altogether from the value of the facts, there are qualities about the work which make it a model of its kind, and on every page is revealed the character of the man. From the first experiment, dated August 1, 1825, to the last, dated November 1, 1833, the observations are made with accuracy and care, and noted in plain, terse language. A remarkable feature was the persistence with which for eight years Beaumont pursued the subject, except during two intervals when St. Martin escaped to his relatives in Lower Canada. On one occasion Beaumont brought him a distance of two thousand miles to Fort Crawford, on the upper Mississippi, where, in 1829, the second series of experiments was made. The third series was conducted in Washington, in 1832; and the fourth at Plattsburg, in 1833. The determination to sift the question thoroughly, to keep at it persistently until the truth was reached, is shown in every one of the 238 experiments which he has recorded.

The opportunity presented itself, the observer had the necessary mental equipment and the needed store of endurance to carry to a successful termination a long and laborious research. William Beaumont is indeed a bright example in the annals of the Army Medical Department, and there is no name on its roll more

<sup>1</sup> “Experiments and Observations on the Gastric Juice and the Physiology of Digestion,” by William Beaumont, M.D., Surgeon in the United States Army, Plattsburg, 1833.



deserving to live in the memory of the profession of this country.

And in closing let me express the wish that each one of you, in all your works begun, continued, and ended, may be able to say with him: "Truth, like beauty, 'when unadorned is adorned the most,' and in prosecuting experiments and inquiries I believe I have been guided by its light."

## CLINICAL LECTURE.

### PHIMOSIS AND THE CONDITIONS THAT IT COMPLICATES IN THE ADULT.<sup>1</sup>

By WILLIAM P. MUNN, M.D.,  
OF DENVER, COL.;

PROFESSOR OF GENITO-URINARY DISEASES AND CLINICAL SURGERY IN  
THE UNIVERSITY OF DENVER; GENITO-URINARY SURGEON TO  
THE ARAPAHOE COUNTY HOSPITAL, AND CONSULTING  
SURGEON TO ST. LUKE'S HOSPITAL.

THE patients shown you to-day will illustrate several phases of that rather common condition, phimosis, and the diseased conditions that are complicated and rendered more difficult of treatment by the presence of phimosis. First, let me direct your attention to these three cases circumcised some time ago and presenting resulting conditions of varying perfection. These men had all of them redundant foreskins, and each of them was the victim of mixed venereal infection; two contracted the initial lesion of syphilis and the simple venereal ulcer or chancre at or about the same time; one contracted syphilis and gonorrhea at the same time.

In this first patient, Peter M., the sore, then recognized as chancre only, was situated upon the prepuce just at the junction of the skin and mucous membrane, and was not only difficult to treat but was refractory to treatment. It was apparent that removal of the foreskin was necessary, and if neatly and cleanly done so that the operation-wound should not be contaminated, would lessen the difficulty of treatment by removing the sore at the same time. This was done and an eminently satisfactory result obtained. The fine linear scar can now hardly be seen, there is no thickening of the mucous membrane, and the very slight edema near the frenum will disappear in a few weeks. We have here, then, what may very properly be called an ideal result of the operation of circumcision. In the patient's left groin you observe the depressed, puckered scar left by the wound made in excising the bubo which occurred there as an accompaniment of his chancre. The incision healed almost entirely by first intention. In the time that has elapsed since the operation, mucous patches in the mouth and other secondary manifestations of syphilis have made their appearance, and the man is now taking mercury and potassium iodid in free dosage.

The next man, you will remember, had secondary manifestations of syphilis and a free gonorrheal discharge. On account of his elongated prepuce it was not only difficult to effectively treat his gonorrhea, but the retained secretion excoriated the mucous membrane of the glans and of the prepuce. With this patient the circumcision was done by the method of first slitting the

foreskin with scissors to a point back of the glans, then trimming off the corners of the flaps, and suturing the skin and mucous membrane. The result is not so perfect as in the first patient, but may still be considered satisfactory. In a few months the swelling and infiltration will disappear and there will be little evidence left of operative procedure.

This third patient I wish to place in contrast with the two already shown. He has been subjected to a simple incision of the prepuce in order to facilitate treatment of a mixed sore located on the frenum. As you see, the real object of the incision was not attained, for the long and flabby lower flap of the prepuce has remained in continuous contact with the glans, and the chancroid process, which was probably serpiginous, pursued its uninterrupted course and has quite destroyed the frenum. This is an excellent example of a bad result due to an incomplete operation. But the present condition is not such as to demand further immediate operation, as the chancre is now undergoing cicatrization and will soon be quite well. Some points in reference to this man's mixed infection are of sufficient importance to justify a slight divergence from our main subject for their brief consideration. As he opens his mouth you can see the well-marked mucous patches becoming confluent upon the palate just to the right of the uvula; his hair is also coming out, the spots upon the skin are very apparent, and as I now have him lean over and spread apart the buttocks so as to expose the anus you can observe characteristic mucous patches upon the anal mucous membrane. These are incontrovertible evidences of the second stage of syphilis. They are of especial importance in connection with the history given by the patient. Before entering the hospital he had been under treatment by an irregular syphilis-specialist who had so dosed him with mercury on the appearance of the mixed sore upon his penis, that he was thoroughly pyralized before the appearance of the secondary manifestations. Now note that the saturation of the system with mercury did not prevent the occurrence of the secondary signs. This remedy antagonizes the effects of syphilis, but does not prevent the action of the syphilitic poison or germ. The medication was ill advised because at the time it was given the disease was still a local process and there were no constitutional manifestations to be met by the administration of mercury as a constitutional remedy. The result was the development of pyralism without any arrest of the onward progress of the disease.

To return to our original subject, phimosis and its relief by circumcision. The man who has just been anesthetized is over seventy years of age. He has an extremely long and very tight foreskin, and in addition you will notice that there is present a free, purulent discharge from the urethra. This discharge is a typical gonorrheal flow, and he gives a history of venereal exposure some ten or twelve days prior to the inception of the discharge. The fact deserves emphasis, that no age is exempt from gonorrhea if exposure occurs. It is usually a disease of young adult life, but it may occur at any age, as I have before seen it in men of about the same age as this patient, and also in little children. Last year we had in the hospital a girl four years old with a gonorrheal vulvitis due to wearing clothes soiled with the discharge from an older patient; a boy five years old who

<sup>1</sup> A Clinical Lecture delivered at the Arapahoe County Hospital, January 30, 1894.

had acquired it in some unknown manner, and a boy eight years old who had gotten it by attempted sexual intercourse with an older girl.

This man's prepuce is so long that it has thus far absolutely prevented not only treatment of the urethra but has rendered cleansing of the fossa back of the glans practically impossible. Immediate circumcision is the only proper treatment for this condition. Dr. Stover, the surgical resident, will perform the operation. Instead of following any of the elaborate and somewhat fantastic methods that have been devised, we follow a method which is simplicity itself and which gives results as nearly ideal as any of which I know. The end of the prepuce is held either between the thumb and forefinger of the left hand or grasped in a forceps held in the left hand. With scissors curved on the flat, the redundant foreskin is then removed at one stroke. Danger of wounding the glans penis by this method amounts to nothing, for the glans glides back from the scissors so quickly and easily that it would be impossible to nip it if the effort were made. As the skin of the sheath retracts the mucous membrane is seen still encircling the glans. Before proceeding any further it is well to arrest all hemorrhage. Firm pressure with a gauze sponge will frequently suffice, but if the artery of the frenum bleeds freely, as in this case, it is seized with artery-forceps and twisted with five or six full turns of the forceps. The mucous membrane is now slit backward on the dorsum of the glans nearly to the corona glandis and the flaps rolled back. There is one precaution to be taken at this point, and that is to avoid entering the scissors-blade in the meatus. Little likely to occur as this seems to be, yet it has occurred, and careless operators have clipped through the glans as well as the preputial mucous membrane. The corners of the reflected mucous flaps are now trimmed off with the scissors, and, after thoroughly cleansing the glans and removing accumulated smegma from behind the corona, the mucous membrane and the skin are sutured with interrupted silk-worm-gut sutures. Ten stitches are inserted in this case. The dressing is a simple antiseptic one, powdered iodoform being rubbed into the wound-surface; several layers of iodoform-gauze are applied and held in place by a rubber band. The stitches may be removed in a week, and I anticipate complete primary union.

Our next patient is a younger man, about twenty-five years old. The foreskin is long and lax—no tightness whatever. You can see no sore and there is no discharge present, but as he retracts the foreskin there appear some of the results of irritation from the continuous moisture of retained secretions. The inner surface of the prepuce, and the glans penis as well, are covered with mushroom-like growths varying from an eighth to a half inch in diameter. These vegetations are venereal warts, and this man has about as large a crop of them as you will often see. He has been in the hospital before and had a number of warts clipped off or burned with acids, but there is very prompt recurrence because the predisposing causes, this elongated prepuce and his uncleanly habits, still persist. He has, as you see, no specific venereal disease, and these papillomata are but the results of long-continued irritation and maceration of the mucous membrane. These growths

were not apparent until the prepuce was retracted, yet there is a large mass of them demanding immediate interference. This emphasizes the necessity of making a thorough examination of each case by retracting or causing to be retracted the redundant prepuce. Until this is done it is impossible to know or even guess what may be concealed; perhaps such growths as these are, perhaps a malignant growth, an initial lesion, a chancre, an injury, a mass of retained secretions, or even a calculus. I remember especially the case of a man who was in the medical ward last year, with obscure febrile symptoms. After several days he incidentally gave a history of passing blood with his urine, and it was presumed that it came from his bladder or kidney. On examining him I found that it came either from the penis or the urethra, and at first glance I thought he might have introduced some foreign body into the urethra, but upon retraction of a long and rather tight prepuce there was exposed back of the glans a serpiginous chancreoid nearly an inch and a half in its greatest diameter which had eaten into the body of the penis and opened the artery of the dorsum. A few days' further delay in discovering the sore would probably have resulted in entire loss of the glans penis.

The treatment of the present case will be removal of the warts and of the prepuce, and I will ask Dr. Mack, the chief resident, to perform the operation. We will employ cocaine-anesthesia in this case. As a preliminary the penis is first rendered bloodless by pressure, after having been wrapped with bichlorid gauze. A rubber band is now placed at the root of the penis and serves to control the return circulation. We employ a ten per cent. solution of cocaine and inject two or three drops upon the dorsum, upon each side and near the frenum; in all ten drops are used, representing about one grain of cocaine. As the warts are removed, their bases are freely touched with Monsel's solution. The prepuce is removed in the same manner as in the former case, and the artery of the frenum requires torsion here also. Suturing and dressing are the same as before.

The result of continued neglect of the benign papillomata which occur in patients like this may be the conversion of a benign into a malignant process. Almost all cases of epithelioma of the penis occur in patients having just such long foreskins, and the continuous irritation of the retained secretions has been the active factor in causing malignant development.

Here comes the last patient for to-day's clinic. His penis and what is left of his prepuce present a peculiar appearance. He has been circumcised before, but whoever operated upon him failed to break up the adhesions between the glans and the prepuce, and as a result only the end of the glans is visible. All of the movable mucous membrane of the prepuce has also been removed, and so we have the skin almost directly united to the glans, with only the slightest amount of retraction possible. I shall endeavor to improve the present condition, although it is quite impossible to secure a perfect result. The patient is now under chloroform, and I dissect with scissors between the prepuce and the glans until the corona is reached and exposed as fully as possible. In the same careful way, by a circular dissection, the thick, bulging scar-tissue left by the former operation is removed, and what little mucous membrane has been

raised from the surface of the glans by dissection is carefully sutured to the edge of the skin. This is not, by any means, a beautiful result, but it promises to be a great improvement over his former condition both as to the appearance of the member and in increasing the patient's comfort.

In conclusion, gentlemen, it may seem to you that we have given a great deal of time to a trivial and somewhat disagreeable subject. I am aware that abdominal and cranial operations are more attractive to both students and practising physicians than are minor genito-urinary operations, but I am convinced that you will all have to perform such operations as circumcision perhaps many times before you undertake the major operations. There is often more of reputation and of profit for the young physician in a neatly done circumcision, with a good result, than in all the major surgery that comes to him.

## CLINICAL MEMORANDA.

### DERMOID CYST OF THE OVARY SIMULATING APPENDICITIS.

BY M. ROSENHEIMER, M.D.,  
OF MILWAUKEE, WIS.

MRS. A. B., of Goodell, Iowa, aged twenty-six years, of American parentage, came to this city to pay a visit to her parents, who reside here, after a week's sojourn at the World's Fair. When she left her home in Iowa she was in her usual health. She arrived in this city on the 3d of September last. On the 14th she first began to feel ill, with pain in the abdomen, but as she was menstruating at the time and usually suffered some pain during her periods, she attributed the pain to this cause. The pain, however, increased and medical advice was sought. The physician called relieved her by the use of anodynes, and for a short time she felt comfortable. On the evening of the 17th of September I was requested to see her. I found the patient, a small woman, greatly emaciated, complaining of severe pain in her abdomen. She felt constantly nauseated, and vomited whenever anything was taken into the stomach. On examination I found the muscles of the abdomen tensely contracted, the thighs flexed, and the face conveying an impression of intense suffering.

The seat of greatest tenderness was in the right iliac region, extending toward the median line, and a slight elevation was discernible. There was flatness on percussion, extending from the right iliac region to the linea alba. Her tongue was covered with a brownish fur; the pulse was 108; the temperature was not taken. The bowels had not moved since the 14th, and several injections of soap-water, given just previous to my seeing her, brought away very little. I gave the patient's friends to understand that she was seriously ill, and was apparently suffering from appendicitis, though possibly from some other form of intestinal obstruction.

Thinking the condition might possibly be one of fecal impaction, I prescribed several doses of the mild chlorid of mercury and gave directions as to its administration. The family requested that I call again the following day. At 6 o'clock A.M., on the 18th, the patient's father called at my residence and requested me to

come at once. On inquiry I found that the woman had retained a part of the calomel and that she had had a passage from the bowels. She still vomited and the pain was not decreased. On local examination I found the elevation in the right iliac region more marked than on the previous evening, and thought I could detect fluctuation. She had not rested any during the night. I made a digital examination per rectum and vagina, and detected a tumor of a doughy consistency in the right iliac region, but on account of the great pain conjoined manipulation was impossible. I advised counsel and called in Drs. Nielson and Hoyer. On consultation an operation was considered imperative by all and proposed to the friends. The relatives readily consented, and on stating the case openly to the patient, after a little deliberation she requested the operation. She was removed to the hospital, and at 12.30 I operated, assisted by Drs. Nielson and Hoyer. An incision was made over the highest point of the elevation, about an inch and a half within Poupart's ligament and parallel with it. On opening the peritoneum about a half-pint of a dark fluid escaped and a tumor presented. After a closer investigation and finding no adhesions, it was decided to remove the mass. The incision was enlarged, and after opening the sac and evacuating some of the contents, a bundle of curled hair about the size of a small orange appeared, and betrayed the character of the growth. With some difficulty it was lifted out, and it was then discovered that the pedicle was twisted, and that the tumor had the appearance of beginning gangrene. The pedicle being securely ligated and cut, the abdomen was freely irrigated with several gallons of sterilized water and the wound closed, with the exception of its lower angle, in which a large rubber drain, wrapped with iodoform-gauze, was introduced. A thick antiseptic dressing was applied and the patient put to bed. She reacted well, and, with the exception of great thirst, felt very comfortable. She was allowed to drink hot water, but took nothing else for the first twenty-four hours. During the following night her temperature became subnormal and her pulse very rapid and feeble, but it responded readily to a nutrient enema and hypodermatics of brandy and strychnin. She did not feel much nauseated and never vomited after the operation. Her bowels moved freely after a glycerin enema on the third day, and spontaneously afterward. The highest temperature attained was 99.6°, on the second day. The wound healed kindly, the drain being removed after twenty-four hours and the opening allowed to granulate. Then followed a rapid and complete recovery, and the woman returned to her home in Iowa five weeks later.

In a letter since received, her husband states that she felt better than ever and was gaining in strength and flesh.

The cyst contained about a pint of a thick greasy fluid, a bundle of hair, and imbedded in its wall was an adult incisor tooth, and a bone resembling one of the long bones of a fetus.

*The Ohio State Medical Society* will hold its annual session at Zanesville, Ohio, May 16th, 17th, 18th. Dr. N. P. Dandridge, of Cincinnati, is the President, and Dr. Thomas Hubbard, of Toledo, Secretary.



# TYPHOID FEVER COMPLICATED BY TWIN ABORTION; RECOVERY.<sup>1</sup>

*German Hospital, Philadelphia.*

SERVICE OF ADAM TRAU, M.D.

[Reported by ARTHUR J. PATEK, M.D., Resident Physician.]

MRS. M. W., twenty-nine years of age, was admitted to the hospital during the acme of a frank attack of typhoid fever. She was found to be four months pregnant. Fearing a possible abortion, the routine bath-treatment was at first withheld, and for three days the temperature combated with spongings. This, however, proved unsatisfactory, and on the third day the bath-treatment was inaugurated. Thirty baths only were given, the temperature falling on the eighth day, but maintaining a fluctuating character about the normal line for two weeks. Again it rose, fluctuating between 104° F. and normal, and being quite septic in type. The possibility of infection from a dead and macerated fetus was considered, but not long entertained, because of the absence of foul discharges and of any other symptom of a septic condition. On the forty-first day of the fever the patient fell into labor. Though the pains were of but moderate severity, labor progressed nicely, and in three hours' time the patient was delivered of five-month twin fetuses—dead, but otherwise normal. Both placentæ came away entire and there was but an inappreciable amount of hemorrhage. The fever remained uninfluenced by this complication, nor did the patient suffer any ill effects. The temperature remained as before, of a septic character, for one week after the abortion, and then declined to the normal, remaining so until the woman was discharged.

The fever-curve, when viewed as a whole, gives the impression of a distinct relapse in the fourth week of the disease. The temperature is fluctuating, it is true, but there is a distinct rise, more or less gradual, a stadium during which the abortion took place, and a defervescence.

There are two points of interest in this case worthy of special mention: First, that a pregnant uterus should have remained quiescent during five weeks of almost continuous fever—104.4° being the highest recorded; secondly, that there should have been a temperature bordering on the septic type for three weeks continuously before the abortion and one week thereafter, the contents of the womb being throughout in an apparently healthy state. It was evident, therefore, that the fever was but slightly, if at all, affected by the state of pregnancy, but is to be attributed almost entirely to the typhoidal condition.

As a most interesting feature in the case may be mentioned the fact that delivery of both fetuses was accomplished without rupture of either amniotic sac, a circumstance which is certainly of rather rare occurrence.

The Medical Association of Georgia will hold its Forty-fifth Annual Session at Atlanta, Ga., on April 18th, 19th, and 20th. Dr. W. H. Elliott, of Savannah, is President, and Dr. Dan H. Howell, of Atlanta, Secretary.

<sup>1</sup> Read before the German Hospital Medical Society, December 4, 1893.

# PATHOLOGIC NOTE.

## DIFFUSE COAGULATION-NECROSIS IN THE SPLEEN FOLLOWING THROMBOSIS IN TYPHOID FEVER AND PNEUMONIA.

BY LUDVIG HEKTOEN, M.D.,

*PATHOLOGIST TO THE COOK COUNTY HOSPITAL, CHICAGO.*

As is generally well known, areas of coagulation-necrosis in the shape of characteristic anemic or hemorrhagic infarcts are found quite frequently in the spleen after death from typhoid fever. The areas of necrosis are due either to a local thrombosis, to embolism, or to the intensity of the acute inflammatory changes that occur.

Inasmuch as an instance of general thrombosis throughout the spleen and a consecutive diffuse necrosis has not to my knowledge come under observation as far as can be learned from the literature at my disposal, at least not in the early stage, it was deemed advisable to place upon record a description of such a specimen even though the observations are in many respects exceedingly imperfect.

The patient was a man, thirty-three years old, acting as a guard at the World's Fair. He passed through an attack of lung-fever in 1881 and of typhoid fever in 1885. After having been three months in Chicago, he began to suffer from headache, anorexia, general malaise, and occasional epistaxis. Ten days after the first symptoms made their appearance, on June 8, 1893, he was admitted to the Cook County Hospital in a typical typhoid condition, with roseola, increased splenic dullness, etc. He passed through an attack of ordinary severity, the pulse varying from 70 to 100, the temperature occasionally reaching 104° during the fastigium, respiration being from 20 to 30. The treatment was entirely routine—milk-diet, sponge-baths, and salol internally. The intestinal symptoms were never prominent. The man was thought to be on the way to rapid convalescence, but on June 30th there was found an area of dullness and loss of respiratory murmur over the right infra-clavicular region, the lungs being normal elsewhere. On July 3d there was noted hemoptysis, with quite distinct physical signs of a small cavity in the right upper lobe anteriorly; elsewhere in the lungs were sonorous and mucous râles; the general condition was bad. On the 8th there were found small hemorrhages under the skin; the condition in the lungs was practically unchanged. Death occurred on July 11th.

*Anatomic diagnosis:* Typhoid ulceration of Peyer's patches; mesenteric adenitis; fibrinous pneumonia with softening in the right upper lobe; broncho-pneumonia; intra-splenic thrombosis and diffuse coagulation-necrosis.

The post-mortem examination, made forty-eight hours after death, showed that the body was quite well nourished, five feet eight inches in length. Rigor was fairly well marked; the usual livores mortis were present. The body-cavities were empty and the lining membranes smooth and shining, except for some soft adhesions about the spleen and the adjacent organs, and also over the upper lobe of the right lung. The mesenteric glands were large. The heart weighed 270 grams. There were no endocardial changes; the myocardium was quite firm and the coronary vessels were normal. In the left lung were a few broncho-pneumonic areas as large as a dime, con-

fined entirely within the upper lobe; the tissue in these foci was grayish-red and granular; there were no evidences of miliary tubercles at their periphery. The upper lobe of the right lung contained a cavity as large as a small orange, partly filled with softened, granular material; the tissue immediately about this cavity was grayish and merged imperceptibly into the semi-solid necrotic contents on the one hand, and into the red, solid lung-parenchyma on the other, the principal part of the lobe being occupied by this cavity and the surrounding gray and red solid tissue. No tuberculous masses, old or recent, could be found in any part of the lungs; the glands at the root of the lungs were not caseous. In the lower lobes of both lungs there was considerable mucus in the bronchi. Sections of the soft borders of the cavity in the right upper lobe, made with the freezing microtome, showed an intense round-cell infiltration, with foci of disintegration, and the more solid tissue showed infiltration into the alveolar walls and fibrinous exudation into the air-cells; frozen sections from the solid areas in the left lung showed uniform infiltration and inflammatory exudation into the air-spaces. Hardened sections and cover-slip smears stained in various ways did not show any tubercle bacilli, but a large number of various kinds of cocci and bacilli. Unfortunately no cultivation-experiments were made. The spleen will be described last. The kidneys were a little increased in size. The cortical markings were indistinct and the cortex appeared yellowish. The liver and the bile-passages were negative to naked-eye examination. The stomach showed only slight acute catarrhal changes. The mucous surface of the ileum showed fifty-six oblong ulcers, corresponding to the location of Peyer's patches; the borders were smooth and in the lower parts of the ileum the floor appeared like granulation-tissue, while in the uppermost ulcers it was composed of the uncovered muscular coat; in all of the ulcers the borders were smooth, the sloughs all discharged, and consequently they were regarded as in the process of cicatrization. Particular attention was given to the condition of the serous coat over the ulcers, with respect to the presence of tubercles, but none was found either here or in the margins of the ulcers. The pancreas appeared normal and there was nothing pathologic found in the cranial cavity.

The spleen measured 14 x 9 x 5 cm. and weighed 250 grams. The surface was covered here and there with small shreds from the torn adhesions between the spleen, the diaphragm, the end of the left lobe of the liver, and the abdominal wall; close inspection showed the capsule to be overspread with a thin, fibrinous layer that could be removed piecemeal very easily; in color the external surface showed a most peculiar, fine mottling of gray, yellow, and light-red. The consistence of the spleen was like that of a firm, normal liver, and the capsule was as tense as it well could be. On the cut surface it was noted at once that every visible vessel was thrombotic, *i. e.*, filled with a firm, granular, light-red, adherent blood-clot; it is possible that the arteries were not so much involved as the veins; at the hilus each large branch of the splenic vein was thrombotic; but the vein itself was free and smooth, and this was also true of the splenic artery and its larger branches. The cut surface presented all over, to a certain extent, the characteristic

appearance of anemic and hemorrhagic splenic infarcts; the color was, however, variable, showing mostly shades of light-red and yellowish-red, with a number of rather minute, homogeneous, irregular, and little depressed areas of dark-gray; with the exception of these homogeneous, dark-gray, apparently normal areas the splenic parenchyma was distinctly and markedly but finely granular, and, as already stated, very solid, though easily friable. The Malpighian bodies and the pulp were nowhere distinguishable; there were no foci of softening and suppuration.

The microscopic examination of the spleen showed in general the following: The majority of the vessels and the vascular spaces are filled with fibrinous thrombi; it is not possible to recognize the vessel-walls sufficiently well to establish definitely any inflammatory changes. The principal part of every section consists of diffusely stained areas, made up of irregular masses, large and small, without any visible nuclei, even though nuclear staining methods are employed; among these masses there passes a fine network of diffusely-stained material, and there are also observed normal and degenerate red blood-corpuscles, but they vary greatly in number in the various fields. These areas of necrosis contain every now and then small foci of tissue which retain to a certain extent the normal spleen-structure, but in nearly all are evidences of necrosis in the shape of homogeneous or granular, diffusely-stained, irregular masses; in these last-described areas are often found dense collections of deeply-stained, sharply-outlined, round nuclei. The distinction between the pulp and the Malpighian bodies cannot be made out in the areas of total necrosis. There are no foci of softening or purulent disintegration. Stains for microorganisms show here and there rather long and thick bacilli.

From the gross and microscopic appearances of this spleen it is quite likely that the extensive thrombosis was primary, and that it occurred simultaneously and to an equal degree in all parts of the organ; the thrombosis did not start in an embolic occlusion, because characteristic wedge-shaped embolic infarcts are not demonstrable in this spleen.

As a consequence of this practically complete thrombosis of all the splenic vessels, the splenic tissue underwent a nearly general diffuse necrosis in the form of coagulation-necrosis, only small foci of tissue retaining its normal structure to a recognizable degree. Perisplenic inflammatory changes also developed.

It is much regretted that a bacteriologic examination could not be carried out fully.

It is not possible to say in what exact manner this unusually extensive and uniform thrombosis was brought about, whether it was marantic, which seems very likely indeed, or due to the degree of splenitis present at the height of the attack of enteric fever, or due to a secondary mixed infection.

COLUMBUS MEMORIAL BUILDING.

## MEDICAL PROGRESS.

*Excision of Larynx, Hyoid Bone, and Five Rings of Trachea for Malignant Disease.*—MACDONALD (*British Medical Journal*, No. 1722, p. 1423) has reported the case of a man, thirty-nine years old, suffering from intense

dyspnea and dysphagia, due to a cartilage-like tumor springing from the larynx and diagnosed myxosarcoma. Breathlessness had been present for six months, and evidences of laryngeal irritation for more than three years. The dyspnea had progressively increased in intensity, and kept the patient in a state of constant fear of suffocation. From the exterior the larynx and the neoplasm together appeared to be the size of a large orange. The growth spread laterally and up and down, as if the whole front of the neck were a solid mass. The ordinary stomach-tube passed with great difficulty down the esophagus, and it could not be determined whether the esophagus was involved or not. The walls of the larynx were so compressed, and breathing was so difficult, that little could be learned on laryngoscopic examination. The general health appeared good. It was decided to perform a preliminary tracheotomy, to be followed, if possible, by a removal of the mass. Ten days after the performance of a low tracheotomy the mass was incised and found to be almost extra-laryngeal, but involving the thyroid cartilage, the hyoid bone, the upper part of the trachea, and the whole of the soft parts surrounding these structures in front to the level of the skin. The pharynx was slightly involved, but the esophagus seemed to be free. A median incision was made in the whole length of the tumor, and two lateral incisions following the hyoid bone as far as the carotids would permit. The mass was now dissected out from below upward. The hemorrhage was profuse, but principally from the upper portion of the thyroid gland. On arriving at the part around the epiglottis and the hyoid bone, it was found impossible to avoid opening into the pharynx. A strong effort was made to save the epiglottis, but immediately below it the pharynx was opened from side to side. This large gap was carefully sutured over a rectal bougie, and finally fixed to the structures in front. The external wound was left open to facilitate drainage and to avoid the troublesome burrowing of pus that is likely to follow operations in the neighborhood of the trachea. The patient made an excellent recovery. The wounded pharynx gave no trouble, nor was there any difficulty in swallowing after the second day. After the lapse of three months an opening into the mouth was established, and the wound in the pharynx was closed. At first articulation could be better performed without instrumental aid, the epiglottis seeming to take the place of the natural larynx, but subsequently the man became adept in the use of an artificial larynx.

**Successful Operation for Spina Bifida with Meningocele.**—

STONE (*Omaha Clinic*, vol. vi, No. 10, p. 438) has reported the case of an infant that presented a spina bifida in the lower lumbar region and a meningocele just in front of the left parietal eminence. There were no evidences of spinal irritation, and the action of the sphincters was preserved. For a week after birth no material change was noticed in either of the tumors, except that they became more full and tense when the child cried or worried, and relaxed during tranquillity. At this time, however, the meningocele began to diminish in size, while the spina bifida increased in size. The child meanwhile thrived and seemed to suffer no inconvenience from the presence of the two lesions. At the end

of two months the cranial opening had closed, leaving only a slight elevated thickening of the bone at the site of the previous fissure. The spina bifida, on the other hand, continued to increase in size. In view of these conditions a portion of the fluid was withdrawn, and a dram of a solution of iodine, 10 grains, potassium iodide, 30 grains, glycerin, 1 ounce, was injected into the sac, and the child kept upon its back for some time. The injection was followed by marked prostration, together with loss of appetite and extreme irritability for several days, and apparent general muscular soreness. The tumor soon resumed its previous size and continued to grow larger. Twelve days later about half of the contents of the tumor were withdrawn by aspiration, and a compress adjusted. The walls of the cyst began to yield and fluid to escape. A radical operation was now decided upon. The child was at the time eighty-four days old. The infant was placed upon its left side, the tumor exposed, and an incision about 6 cm. long made parallel with the spinal column, and about 1½ cm. to the left of the median line. After the fluid contents of the tumor had been evacuated, a second smaller cyst was found at the base of the larger. The walls of the larger sac contained no large nerve-filaments. The sac was dissected out and ligated as close to the spinal cord as possible. After the removal of redundant tissue the outer wound was also closed by suture, a considerable amount of tissue being included in the coverings, to act as a plug for the spinal opening. For two or three days after the operation the little patient continued in a stupor, with the fontanel sunken and the pupils contracted. After the fourth or fifth day the stupor gradually passed away and the child progressed to complete recovery. A ligature-abscess formed, but healed without trouble after discharging. The child was in good health a year after the operation.

**Atrophy of Shoulder-muscles in the Sequence of Pleurisy.**—

THÉVENET (*Lyon Medical*, 1894, No. 5, p. 157) has reported the case of a cook, fifty-eight years old, who, although having been exposed in the course of extended travel to numerous sources of infection, had seemed to have escaped all. He had, however, had four attacks of acute articular rheumatism, of which the third was complicated by a left-sided pleurisy, attended with a copious effusion. The fluid was spontaneously absorbed in the course of two months, but at the end of this time a little flattening of the left side of the chest was apparent, which became more pronounced in the course of the subsequent few months. When the man came under observation in his fourth attack of rheumatism, five years after the third, the left side of the chest was found greatly flattened and contracted, its circumference measuring an inch and three-quarters less than that of the right side at a corresponding point. In addition, all of the shoulder-muscles were notably atrophied, particularly the deltoid. Elevation of the arm was brought about almost solely by the trapezius. The arm itself was but little wasted, although its circumference a short distance below the acromion was but little less than that of the opposite member in a corresponding situation, in spite of the fact that the right was the more used. Moreover, the man complained that for two years there had been progressive loss of strength in the left upper extremity.



The weakness, however, could not be traced to any particular group of muscles. The dynamometer registered sixty upon the right and but twenty-five upon the left. In addition, cutaneous sensibility to touch, to puncture, to hot and to cold, was impaired upon the left half of the chest, the left shoulder and the left upper extremity. The anesthesia diminished progressively toward the periphery. It was believed that hysteria could be excluded and that the sensory and trophic changes were to be ascribed to the previous pleurisy.

**Congenital Hydronephrosis Cured by Nephrectomy.**—ADLER (*Deutsche medicinische Wochenschrift*, 1894, No. 7, p. 151) has reported the case of a child that at the age of two years began to show evidences of abdominal pain and distention, particularly upon the left side. After medicinal measures had been exhausted without avail, an exploratory puncture was made, and showed the swelling to be due to an accumulation of fluid containing small amounts of urea. An incision in the linea alba below the umbilicus disclosed the presence of a tumor occupying almost the entire abdominal cavity and compressing the intestines into a small compass beneath the liver. The wall of the sac was sutured to the abdominal wound, then opened and a portion excised. The tissue removed proved to be renal structure. Nearly a pint and a half of pale, clear fluid containing a moderate amount of urea and a small proportion of albumin was evacuated. After the operation the child was in good condition and the tumor slowly but gradually diminished in size, although the fistula persisted and urine was passed but seldom (about every second day) and in small quantities by the natural channels. Nephrectomy was not undertaken at this time, from a fear that the right kidney might not be in good condition. At a later date, however, the right kidney being detected in its proper position and not appearing of unusual size, and, further, the urine passed by the urethra being clear and without morbid constituents, while that from the fistula was turbid, albuminous, and contained renal epithelium, nephrectomy was determined upon and with some difficulty performed. The subsequent behavior of the case was entirely satisfactory, and at the end of four weeks the wound had closed and presented but a small granulating surface. The urine was now passed by the natural channels in larger amount than before and was of normal quality. The general condition of the child was also improved.

**Hemeralopia.**—At a meeting of the Medical Society of Nürnberg held some months ago, VEITH (*Münchener medicinische Wochenschrift*, 1894, No. 5, p. 97) made an interesting contribution to the subject of the etiology of hemeralopia. He detailed the occurrence of an epidemic of this uncommon affection during the months of April and May in an institution for the treatment of diseases of the eye. Twenty cases were observed. In all the acuity and fields of vision remained normal, but double or treble the usual amount of light was necessary for normal vision. In two-thirds of the cases xerosis conjunctivæ was present on either side of the cornea in the zone of the palpebral fissure. In all of these the bacillus of xerosis was found. In two cases the xerosis had extended to the cornea. There had been no ex-

posure to intense light. The patients were not all derived from the poorer classes; some were well nourished, and all ages were represented. Investigation disclosed the interesting fact that similar epidemics had been observed from time to time in Nürnberg, and always in the spring. Similar epidemic prevalence of hemeralopia had also been reported in other places, likewise in the spring of the year and in marshy regions. From these facts the conclusion is reached that hemeralopia is probably an infectious disease, which may occur in epidemics, like other infectious diseases. The affection appears to depend upon certain local and periodic conditions. Individuals debilitated by nutritive disturbance seem especially predisposed to the infection. It is probable that the disease is dependent upon an exciting agent whose nature is not yet known.

## THERAPEUTIC NOTES.

**The Treatment of Tuberculosis in the Country.**—DATZENKO (*Vratch*, No. 44, p. 1209; *Rev. de la Tuberculose*, 1893, No. 4, p. 382) relates some interesting observations upon pulmonary tuberculosis, made in the course of a period of ten years in country practice. There were in all 87 cases, 24 from the better class, and 63 from the peasantry. Of the former, 5 were cured, 6 died, 4 were improved, 6 remained unchanged, and in 3 the condition was aggravated; of the latter, 1 was cured, 29 died, 8 were improved, 14 remained unchanged, and in 11 the condition was aggravated. This marked disparity between the two classes of cases was due not only to hygienic and dietetic differences, but also to the fact that the peasants regarded the disease as incurable. The treatment employed was purely hygienic and dietetic. As much time as possible was spent in the open air, and a nutritious diet, including large quantities of eggs and milk, was insisted upon. Cod-liver oil was given in addition. To several creosote was administered in small doses. In the winter applications of cold water were made to the general surface of the body, and in the summer cold baths were taken. Medicines were only employed symptomatically. As a rule, improvement became manifest within a week of the institution of systematic treatment. Fever soon disappeared, and with it night-sweats; the anemia diminished in intensity; the bacilli in the sputum became fewer in number, and the expectoration progressively less in amount; the physical signs indicated a sclerotic process in the affected structures, and at the end of a year the patient was greatly improved in appearance. Of the six cases in which a cure was brought about, one had presented induration of the lungs; three, softening; two, cavities. Etiologically three of these gave the impression of having been contaminated by others; while in the remainder the transmission appeared to have been hereditary. All of the patients were young, between fourteen and twenty-four years of age.

### For the Dysphagia of Laryngeal Tuberculosis.—

R.—Cocainæ hydrochlorat. . . . gr. x.  
 Acid. boric. . . . . gr. iv.  
 Glycerini . . . . . ℥. xv.  
 Aquæ destillat. . . . . ad f 3j.—M.  
 Ft. applicatio.  
 S.—Apply topically.

*Practitioner*, No. 308.

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SATURDAY, MARCH 24, 1894.

### THE OCCURRENCE OF DEFINITE TYPES OF EPIDEMICS OF CHOLERA.

THE differences in the extent, duration, and malignity of the various epidemics of cholera have long been a matter of comment, and KOCH, in his earlier writings on the subject, directed attention to two distinct classes of outbreaks, one explosive in onset, and often almost as suddenly disappearing, the other setting in insidiously, spreading gradually, perhaps never attacking a large number of individuals at one time, and generally dying out with the same slowness with which it commenced.

The development of the whole doctrine of the infectious diseases is the outcome of a putting together of the results of investigators who have attempted to acquaint themselves intimately with an individual infectious disease, and now for the first time we are able, thanks to the extreme care with which epidemics have been studied since the advent of the bacteriologic era, to clearly differentiate the two types of epidemic cholera, and to apply the knowledge thus gained in interpreting the varying characters of epidemics of other diseases.

The symptomatology of *epidemics*, as observed by the modern hygienist, is as definite and decisive as that of most *diseases*, and yet perhaps no more definite or decisive. In an epidemic, as in a dis-

ease, it is sometimes possible to make a diagnosis from a single symptom—but this is not the common experience—and in the majority of cases it is only by a careful consideration of all the phenomena involved that a certain diagnosis can be reached.

We shall attempt, therefore, to describe briefly, first, the main characteristics of each of the two types of epidemics, as they are seen in Asiatic cholera, and afterward to point out how there may be more or less marked deviations from the orthodox behavior, and even how there can be a definite blending of the two types in a given epidemic.

In an epidemic of cholera of the first type, individuals are attacked simultaneously in all parts of the affected region, and in this sudden outbreak no direct connection between the cases is traceable. In the second type, there is no even distribution of the choleraic patients; on the contrary, the disease appears in distinct groups or foci of individuals, and even in these groups the members are not taken ill at the same time, but one after another falls sick in chain-like progression. If we were to represent graphically the course of the epidemics, the curve corresponding to the first class of outbreaks would show a sharply ascending limb, rising suddenly to a high point, and then again almost as abruptly falling to near the base-line; the curve representing the second type would rarely go more than a short distance above the base-line.

It is evident that an epidemic of the first type can be accounted for only by the sudden and more or less even distribution of the infectious agent over the whole of the affected region, while in epidemics which conform to the second type the virus is not generally distributed, but is slowly communicated from one individual to another.

Now on analysis it will be seen that there are only a few conceivable ways in which a microscopic virus can be suddenly and evenly distributed over a large area of the population; practically, the only *via* to be thought of are the air, the water, the ground, and the food. Insects may be left out of consideration here, for many of the most violent outbreaks of cholera have occurred during the cold winter months. As to the air, while it is true that recent experimental evidence has shown that cholera-bacilli may under certain favorable conditions be carried to a few people by its agency, yet the actual transmission of the disease in this way has never been

demonstrated; and even if we leave out of account the speedy death of the cholera-bacilli on drying, it does not seem possible that distribution could take place through the air with that rapidity and evenness which would have to be presupposed did we grant such an origin for an explosive epidemic. From the many observations which have been made, the ground, too, notwithstanding the protests of the Munich school of hygienists, may be practically excluded as a carrier of the infectious agent in an epidemic of cholera of this first type. It is possible that small epidemics may be determined through contamination of food-stuffs with cholera-bacilli, but in none of the large outbreaks has the food-supply ever borne any constant relation to the distribution of the cases. By a process of exclusion, therefore, we are compelled in the first type to fall back upon the water as the medium through which the virus must be distributed, and the conclusions arrived at by negative argumentation have lately been manifoldly verified by the positive demonstration in such epidemics of the cholera-bacilli in the drinking-water.

Those who have opposed this view have brought forward the objection that frequently in cities which have suffered from an explosive epidemic, certain houses, or even whole streets, obtaining water from the general supply have been free from cases of the disease, and that, therefore, the distribution of the infectious material was too uneven to be accounted for by a contamination of the water-supply. If, say they, the water is charged with the choleraic virus, and everybody drinks the water, then everybody should have cholera. But in order that this objection may have any weight, it is necessary that the three following conditions obtain: 1. The virus must be soluble in water, and so permit an absolutely even distribution throughout the water-supply; 2. All individuals should drink the same amount of water under precisely the same circumstances; and 3. The susceptibility for infection must be the same in all individuals.

We have, however, abundant evidence of variations in individual predisposition to cholera, aside from the influences of filth, faulty nutrition, overcrowding, and occupation. It is easy to see, too, how the relations of different individuals to the contaminated water can bear on the possibilities of infection. Thus, while one man drinks scarcely any water, another may consume large amounts daily, and among those who drink the water it is necessary to consider

not alone the amount taken, but the time of taking, whether on an empty or on a full stomach, what the conditions of the gastric and intestinal functions are at the moment, and whether or not excess of any kind has recently been indulged in.

But it is the conception generally held of the way the virus is distributed in the water which is farthest from the truth. The infectious material does not exist in the water in solution. In "water-epidemics," be they of cholera or of typhoid fever, we have to deal with comparatively crude *suspensions* of the bacilli, and it is to this fact that we are to look mainly for the explanation of the little irregularities which sometimes occur in a generally even distribution. Moreover, it is exceptional that the bacilli are present in infected water in large numbers—they are never present, for example, in anything like the amounts which we see in a bouillon-culture in the laboratory, but are relatively sparsely distributed. When we consider this fact, and also the irregularities which might follow the attachment of bacilli to firm objects, or to the walls of the conducting pipes, and those consequent on variations in the rapidity of the current in different parts of the system, the only wonder is that an outbreak can assume the generally even character so often seen.

All the points which we have here mentioned have been brought forward by KOCH in his description of the cholera in Germany during the winter of 1892-93. He quotes, too, the answer of FARR to those who objected to the latter's view (based on the finding of eels in different parts of the water-system) that the virus in the epidemic of cholera in England in 1866 was spread through the drinking-water, owing to faulty filtration. It reads as follows:

"Eels, as we have seen, were found in the water in a certain number of houses in East London. To argue that in hundreds of other houses no eels were found, and that therefore the company never distributed eels in the district, would be absurd. The fallacy of such reasoning is transparent. It assumes the form: If no eels are found in the waters of a certain number of houses, none exist in the waters of any houses. As the eels are limited in number they cannot be distributed universally, and the fact that they were discovered in one house and not in another would depend on laws and circumstances so intricate as to make the ascertained distribution anomalous, but not necessarily more anomalous than the distribution of the lower forms of organized matter, to which the phenomena of cholera in man are due."

We turn now to the second type of epidemic, in which the cases occur in groups (cholera-nests), the



members of which are stricken successively rather than simultaneously, and are all perhaps the offspring through several generations of a single primary case. While it is possible in some instances to trace a direct connection between the cases, it is not strange, considering the complicated nature of human intercourse, and the multiplicity of ways other than direct by which the bacilli could pass from the feces of one individual into the alimentary canal of another, that as a rule there is failure to discover all the links in a given chain.

If all cases of cholera were severe enough to come under the observation of physicians, if the danger of infection by the feces of a patient began or ended with his symptoms, and if contagion occurred only through direct contact with infected individuals, then, in spite of the intricate relations of commerce and society, we might possibly, with the aid of thorough bacteriologic examinations, succeed in making out and keeping track of each of the members of a chain.

We know now, however, that cases of cholera occur in which the symptoms are so mild that they pass unnoticed, that there are even instances, unfortunately, in which considerable numbers of cholera-bacilli are present in the feces of an individual who has been exposed to infection, without the slightest disturbance being manifest, the person presenting absolutely no symptoms and making no complaint. We know further that in the ordinary course of the disease, the cholera-bacilli are present in the feces both before the onset and after the subsidence of the acute attack; and when, besides the direct contamination with the feces of cholera-patients, we remember the indirect methods of transmission through the linen, the clothing, the bedding, the food, or by insects, we can understand in a dense, and especially in a fluctuating populace, the impossibility of keeping track of the exact method of distribution of the microorganisms.

From what we have said, it will be apparent that the two types of epidemics of cholera may often—indeed, must often—be combined. In an epidemic, say, of the first type, which in the beginning is pure (*i. e.*, in which each of the early cases has arisen through infection by water), there must soon appear little secondary epidemics scattered throughout the place, which are true examples of the "chain-like" type; and again, it is easy to conceive how a single or multiple "nodular" epidemic, beginning definitely as type two, could be

followed by a local or general explosive outbreak, depending on a local or general contamination of the water-supply.

A little reflection will teach that the cholera-curve, under certain circumstances, may not be decisive for the type of an epidemic under consideration, for if the water be only slightly contaminated, the bacilli being extremely sparsely distributed, the line of the curve may be low; or on the other hand, a multiple nodular epidemic may break out under such peculiar conditions as to make its curve approximate closely to that ordinarily seen in type one. The insufficiency of single symptoms for the diagnosis of the type is thus made strikingly evident. It will be seen that each epidemic should be studied for itself by a skilled hygienist, who will be able to decipher the puzzling symptom-complex, and to decide as to the nature of the primary epidemic, the origin of secondary or tertiary epidemics, and how much of the outbreak belongs to the one and how much to the other type.

#### TOXIC HYSTERIA.

IN THE NEWS of October 28, 1893, we discussed the subject of traumatic hysteria, and sought to show that the recognized stigmata of hysteria, as established by the labors of the French school especially, are being utilized to some extent to characterize an artificial neurosis, which is called rather crudely "railway spine." We now come to another aspect of hysteria, which, if not of such daily importance as that aspect of the disease brought about by trauma, is still a major question in pathology, and of grave significance in diagnosis. We refer to the toxic origin of hysteria.

When BRIQUET wrote his classic treatise on hysteria, in 1857, he quoted as examples of the disease in the male the cases of seven men, of whom, by more than a coincidence, four were workers in lead. He himself seems to have been impressed with this significant fact. Two at least of these patients had presented some of the ordinary symptoms of lead-poisoning, so that in them the hysteric stigmata were in the nature of epi-phenomena, or post-phenomena, clearly distinguishable, but yet likely to be confused with the symptoms of saturnism by a careless observer. These cases presented a type which may still be seen occasionally; and this type presented two classes of nerve-symptoms—first, those that were directly due to the physical effects of the poison upon nerve-tissue, and, second, those

that were purely hysteric. This embodies the vital distinction upon which we would insist here. The proposition is that among the causes of hysteria must be included various toxic substances, among which the most prominent are alcohol, lead, mercury, carbon disulphid, tobacco, and morphin.

Alcohol has long been recognized as an hysterogenous poison. In this country, in fact, it is probably the only one of the group named that would be recognized generally as possessing this quality. The toper is such a common sight in hospitals that all his defects are recognized. Among males it is now thoroughly established that two causes especially, alcohol and trauma, are active in the production of hysteria. In 1874 MAGNAN described the hemi-anesthetic form of chronic alcoholism, a type which can leave no doubt of its hysteric nature. Later, GAUTIER, in describing the symptoms of chronic absinthism, indicated the hysteric character of some of them.

But one of the most notable contributions to the subject of toxic hysteria was the paper by LETULLE, on the hysteria of mercurial poisoning. He showed conclusively that mercurial poisoning may be the cause of hysteric stigmata, such as tremor, anesthesia, paralysis, etc., and that this tremor, which of course is not identical with the organic tremor caused by mercury, is shown to be hysteric by the fact that it has been cured by esthesiogenic agents. Somewhat analogous results have been obtained in cases of lead-workers, already referred to. LANDOLT and OULMONT, in 1878, made the statement that saturnine hemi-anesthesia (one of the most common of the hysteric manifestations of lead-poisoning) can be transferred, and even cured, by magnets. GUINON, in his recent monograph on the exciting causes of hysteria, places lead-poisoning in the front rank.

The victim of the morphin-habit may display some of the stigmata of the grand neurosis. These are most likely to be observed during enforced abstinence from the drug, and hence may complicate the period of treatment and convalescence. It is needless to point out that a knowledge of this fact may give the physician great advantage and confidence under circumstances in which otherwise uncertainty and confusion might exist.

It does not appear strange, when the fact is attentively considered, that the various poisons should have an hysterogenous effect. We observe that this power has two methods of action: First,

by the general toxic effect upon the nervous tissue; hence by lowered tone and resistance which permit any inherited or acquired neurotic tendency, as hysteria, to assert itself. Second, by a more direct psychic impression, such as shock, fright, or anxiety, which is the natural consequence in many persons of the knowledge that they are poisoned. This latter method of action is observed in those cases especially in which the poison has been taken accidentally, or not by voluntary act, as in the cases of lead, mercury, and, in fact, most other poisons. Hence this action is strictly analogous to that of other moral and physical causes of hysteria, such as trauma, acute disease, and violent emotion. This is a most important phase of the subject. Cases have occurred of long-continued hysteric perversions of the stomach, as anorexia and vomiting, after the ingestion by accident of a supposed violent poison, which in itself was really harmless, as in one reported case, in which saltpeter had been taken for Epsom salts. A somewhat similar case has recently come to our notice, in which a lady consulted a physician for a slight sore-mouth, caused by an ill-fitting set of artificial teeth. She was told that she was poisoned dangerously by mercury absorbed from the vulcanite plate. She immediately developed a train of hysteric symptoms, including tremor, of which the specialist proceeded to cure her. It is sufficient to say that she never had had true mercurial poisoning, but only the shock of being told that she had.

The anxiety and mental depression of some persons with chronic lead and mercurial poisoning are almost pathognomonic of the condition. These are purely psychic phenomena, and are closely analogous to some of the mental stigmata of hysteria. Hence they form a natural and fertile soil upon which may flourish a whole train of truly hysteric phenomena.

The symptoms of toxic hysteria are readily grouped among the now well-recognized stigmata of the great neurosis. But some of them have special prominence. The most common are tremor, anesthesia, paralysis of various kinds, and anorexia and vomiting. The list cannot be strictly limited, because it is possible that any form of hysteria can develop when an active and exciting cause exists; but those symptoms only are indicated that are most common. Paroxysmal hysteria is not so common as the inter-paroxysmal or permanent stigmata.

Closely allied in its hysterogenous power to these various toxic substances is ether. Surgical anesthesia may produce one or more of the hysteric symptoms. Such cases are frequently overlooked, but they may confuse the prognosis of cases, and they have ere now even figured in medico-legal proceedings. Persistent and violent tremor, purely hysteric, has followed ether-anesthesia, and even threatened to frustrate the object of the operation. The remedy has been found in a proper diagnosis. When chloroform and ether were introduced into practice queer complications sometimes arose from their powerful psychic influences and hysterogenous effects. Physicians were held responsible for the production of grave nervous complications—generally hysteric and usually misunderstood—and for even puerperal mania. Happily times are better, but these things are not altogether impossible even to-day.

The importance of the study of toxic hysteria cannot be gainsaid. As the symptoms closely simulate those of the organic action of the various poisons, they are most naturally confused with these latter, and the case must bear a double burden of disease. Nothing can be more discouraging, because the hysteric perversions will stereotype and perpetuate the appearance of the organic affection. Witness the tremor of mercurial poisoning, the hemi-anesthesia of lead-poisoning, and the vomiting of a supposed poisoning by saltpeter. Without a proper diagnosis and elimination of these stigmata it is not too much to say that there can be no progress made in the successful treatment of these cases. From a medico-legal standpoint the all-importance of diagnosis is obvious.

#### DANGER TO THE ARMY MEDICAL DEPARTMENT.

THE Army Appropriation Bill, as reported by the Committee on Military Affairs to the House of Representatives, provides that no more appointments of assistant surgeons in the army are to be made until the number (now 125) is reduced to 90. As the army is not reduced, and as all the medical officers of the army are kept busy, this appears to be a very unwise attempt at economy. It would of course put an end to the Army Medical School for at least five or six years. The bill also maintains the reduction of the appropriation for the Library of the Surgeon-General's Office to \$7000 instead of \$10,000, as it used to be, and as it certainly ought to be, to meet the demands of the medical profes-

sion of this country; and it reduces the amount allowed for the purchase of medical supplies from the usual sum of \$185,000 to \$150,000. This means that new instruments and new drugs cannot be obtained by medical officers, and that the officers and enlisted men of the army cannot have the benefit of the improvements in methods of treating disease and injuries which are now so frequently discovered or devised.

The members of the medical profession of the country should inform their representatives in Congress that this is unwise economy, and that they should seek to increase the efficiency of the army medical department rather than to diminish it.

#### EDITORIAL COMMENTS.

*One of the Difficulties of the Country Physician* is described by a valued correspondent as follows:

I had been attending the ten-year old son of an illiterate white couple living seven miles in the country. Passing the mother in the road the other day, I inquired as to the boy's stiff leg. "Well, Doctor, 'tain't much better. I ben usin' one remedy tho', that ef I could have kept it up I b'lieve 'twould er cured him." "What was that?" "I got some of these little red airth-worms, put 'em in a bottle, and hung it in the chimney corner tell they stewed down into a intment, and then rubbed him with it. The fust time hit seemed to help him powerful, but every time we opened the bottle hit made him sick and me too, so we had to quit."

What can rational medicine hope to do when it must deal with such superstition and ignorance? Her boy had a perityphlitic abscess when I called to see him, two months previously. This was treated by incision and drainage and he made a good recovery, except that he still held the leg in a flexed position. I had demonstrated to them how this must be overcome by massage and passive movement, but such silent agencies seemed less potent to their credulous minds than the powerful "airth-worm intment."

There are few things that more persistently and subtly sap the vital and scientific energy of the country physician than this combination of ineradicable ignorance and superstition on the part of those among whom he practises. The physician constantly sees those atrocious examples of medical cruelty and filthiness into which the primitive mind seems to slip as naturally as a crocodile into water. Identically the same fact, however, is seen in the "best society" of urban life, as illustrated by the popular fads and foibles of those who in other matters have good sense. Necklaces of amber beads and Hahne-mann's bust are displayed in our drug-stores; faith-cure establishments can pay expensive rents on the most fashionable streets, and a popular newspaper distributes from its own office thousands of bottles of "patent" medicine. Verily, it requires a deal of humanitarian good-will and genuine missionary spirit to practise honest and scientific medicine among such folk, who are apparently worthy only of a sane man's contempt. The belief in medical magic will doubtless outlive every other form of superstition that has come down to us from savagery.



**Some Dangerous Nuisances of City Streets.**—It is almost a daily occurrence that the street-sweeping of certain cities is carried on without proper sprinkling. The result is that a blinding, mouth-filling cloud of filthy dust is raised that floats into every household for squares, and that is sucked into every lung that breathes it. To physicians, who know the danger of this, and even to the decently cleanly citizen of any calling, this is a shame that should not be permitted.

In cities with old-fashioned narrow streets and sidewalks, the ridiculously-small space permitted those who walk is further narrowed, often to four, or three, and even to two feet, by some strange blocks of stone near the edge of the sidewalk, over which people stumble, and by which they are not infrequently hurt. The old laws against profanity should be at least rescinded, or else these stones should be "discharged." They are never used, as all carriages now have steps to aid a few persons in alighting. If they, or the equally useless hitching-posts, were of any use to one or two people, the thousands to whom they are a nuisance might endure their broken shins and ruined dispositions with more equanimity, as they do endure the impertinent extension of door-steps half or three-quarters the way across the sidewalk. But the hitching-posts and stepping-stones, and often the doorsteps are as useless as the buttons on the back of a coat. Would they were as harmless!

The police of at least one of our cities have no sort of an idea that the poor people who happen to live in the houses have any rights, so far as quietness or sleep are concerned. The tyrants who drive the carts and wagons, who condescend to gather the street-dirt, the hawkers, the "musicians"—all the street-owners—bawl and howl at their poor animals or their fellows at all hours and times, and especially at night, with vocal energies to give a fog-horn lessons. The hoodlums, and especially the young ones, from ten to twenty years of age, occupy their every loafing hour of day or night with rivalry as to who can make the loudest, most hideous, and most inhuman yells and yowls. How many are made ill, how many prevented from recovery by these and similarly outrageous city noises?

**Old-time and Modern Dentistry.**—The sudden rise of the science of dentistry is a remarkable fact, as it is quite clear that the ancients were not far behind us in this art. There followed several thousand years in which the entire science and art consisted in pulling teeth, quite regardless whether the teeth were good or bad. In the memory of living men the public tooth-puller was a frequent offence of village street-corners and is probably still plying his lucrative trade in some parts of the United States. It is but lately that the dentists best known to Parisians were called "arracheurs des dents," or tooth-drawers, who had chairs on the Champs Elysées, where they extracted teeth in the presence of large crowds. It was the popular belief that, in order to support their proclamation that the operation was painless, as soon as the dentist got his pincers firmly fixed on the tooth, he whispered in the patient's ear, "Canaille, if you make the faintest squeak, I'll break your jaw." The arrival of the American dentists, forty years ago, gradually banished these worthies from the public view, and gave dentistry the rank of a profession,

and made its processes more humane and scientific. But dentistry is still in France a great refuge for quacks and impostors, as there is no proper legal control of the art and no diploma is required for the practice of it.

**Privileged Testimony of Physicians which Cannot be Stricken Out.**—Conceding that a physician is an incompetent witness in a given case, upon the ground that his information has been acquired while attending a person as his patient, and which it is against the policy of the law for him to divulge, the Supreme Court of California holds, in the recently decided case of *Wheelock vs. Godfrey*, that if the patient, as one of the parties to a suit, introduces testimony of the physician which, in the face of an objection, would be incompetent, he cannot strike it out upon discovering that it militates against him, without the consent of the opposite party. By offering the witness, and eliciting testimony from him, he in effect declares the witness as competent and the testimony proper. In the absence of objections on the other side, it is the equivalent of consent, and is as binding upon the parties as a written stipulation agreeing to the competency of the witness to testify to the given facts would have been.

**Unsoundness of Mind and Incapacity for Business are Correlative.**—Unsoundness of mind and an incapacity for the transaction of business are correlative; each implies the other—says the Supreme Court of Indiana in the recently decided case of *Teegarden vs. Lewis*. When a person is so far deprived of reason that he is no longer capable of understanding and acting with discretion in the ordinary affairs of life, he is insane, within the meaning of the law; in other words, want of capacity to act with discretion in the ordinary affairs of life is evidence of unsoundness of mind. And when a person has been found to be of unsound mind, the law infers that he is incapable of transacting business. Not only cannot a person of unsound mind enter into a valid contract, or make a valid will, but he cannot even make a valid gift.

## SELECTIONS.

### THE PROHIBITION ON CHEMICAL INDUSTRY IN AMERICA.

OVER a quarter of a century has rolled by since the smoke of battle cleared away and the din of arms ceased to resound throughout America. The arts of peace have been cultivated for a generation, and one by one the oppressive measures, made necessary by a state of war, have been repealed or have lapsed by limitation. Only recently the press heralded the repeal of the Federal Election Laws as "the wiping out from our statute books of the last of the war measures," and all true Americans, victors and vanquished, Republicans and Democrats, all—save a few blood-thirsty non-combatants—rejoiced together over the fact.

But is it a fact? Every pharmacist in the land, from the great manufacturer down to the modest country apothecary who makes a few tinctures and fluid extracts, knows that it is not. He knows that the art and science of pharmacy, the art and science of medicine, and their clients, the sick and suffering of the country,

still groan and labor under a war measure which, however necessary it may once have been in its inception, has for years past been more onerous, unjust, and shameful than any for whose repeal at least one great party has been clamoring—the tax on alcohol for manufacturing and medicinal purposes. It still stands on the statute books, a war burden, after thirty years of peace; a tax on the sick and suffering, a paralyzer of industries, as foolish and short-sighted as it is unjust and iniquitous.

And now, when the proposed revision of the tariff had given the pharmaceutical profession reason to hope for its repeal, or at least mitigation, comes the notice that it is proposed to increase the tax and duties on alcohol.

This is a blunder—a worse than blunder. It is an outrage on a long-suffering class, as well as a blunder from an economical point of view, and one so plain that it would seem that any person of common-sense would see its folly. Let Legislatures and Congress put all the tax they please upon liquor intended to be used as a beverage; let them throw all the difficulties they please around the distillation of and trade in it, and few decent men would care to raise their voices in protest; but when it becomes a question of retaining prohibitory tariffs or taxes on alcohol for use in medicine and in the arts and industries, every sane individual should unite in protest.

The tax on alcohol for these purposes, and the inanities of our laws regulating the registration of trademarks, by which foreign patentees have every advantage over Americans, have paralyzed chemistry and chemical industries in this country, and have forced us to import from Germany and France millions, yes, hundreds of millions, of dollars worth of chemicals, drugs, and medicines that would otherwise have been manufactured in the United States; they have carried hundreds, possibly thousands, of millions of dollars abroad during the past thirty years that should and would have stayed in this country, but for these fool statutes. Further than this, with our vast surplus of cereals, enabling us, were it not for the tariff and taxes, to produce alcohol cheaper than any other country on earth, the United States might have been the exporter of untold millions in chemicals to the balance of the world.

Just as long as we allow Schering, and Merck, and the host of other *Chemische-fabriken auf Actien, Farbenwerke*, etc., to patent their goods and register their trade names in this country, without reciprocity, and to appoint their "sole agents" and representatives in this country, through whom all orders for goods must pass (thus creating a monopoly on a monopoly); just as long as we do this, and forbid Americans to manufacture chemicals, by placing the most important article in their manufacture at so enormous price that its use and employment is ruinous—just so long will we be importers, instead of manufacturers and exporters, to the extent of hundreds and thousands of millions of dollars.—*National Druggist*, March, 1894.

#### THE PREPOSTEROUS CLAIMS OF HOMEOPATHY.

It is time that the preposterous claims to originality made by homeopaths in regard to what they are pleased

to call their *materia medica* were exposed and refuted. As a matter of fact there are few, if any, drugs in the so-called homeopathic list of remedies which are not taken bodily from French or German works on drugs, many of which are either out of print or forgotten. It would be as easy to show that the pretended discoveries of the homeopaths are in fact plagiarism as it is to demonstrate that *similia similibus curantur* is a fallacy in the logical sense of that word.

Every practical student of therapeutics is aware of the fact that all substances, whether fluid or solid, which have any action on the organism produce two apparently opposite and contradictory series of effects, resulting from their exhibition in different doses, or, in some instances, observable in successive stages of their operation. Thus, to take a familiar example, opium acts as an excitant in one dose and as a sedative in another dose, the precise proportions required to produce the several effects varying with the individual, but the two phenomena being presentable in every case. Castor oil may stand for a drug which promotes peristaltic action in one part of its operation and checks it in another, not by producing exhaustion as is too commonly assumed, but specifically, as was found by the experiments made with castor oil during the prevalence of cholera. Better illustrations of the fact to which I allude might be found, but these occur to me as familiar. Now it must be evident that if this be so every drug may be claimed as a "similar" by any one desirous of propounding the dogma *similia similibus curantur*, and ignorant or careless of the fact that all drugs have contradictory actions in different doses. The fallacy of the homeopathic system lies in this, namely, that the drugs employed by homeopaths are never given to cure disease in the doses which they allege will produce effects similar to the morbid phenomena they affect to regard as "indications."

In brief, the whole pretence is a juggle. Setting wholly aside the absurdity of infinitesimal doses, the very principle is a fallacy.—MORTIMER GRANVILLE, *Medical Press and Circular*, No. 2856, p. 107.

#### CORRESPONDENCE.

##### MEDICAL PROGRESS IN CLEVELAND, OHIO.

To the Editor of THE MEDICAL NEWS,

SIR: At the last meeting of the Cleveland Medical Society, March 9th, nearly three hundred physicians were present. The Society had lately so amended and revised the Constitution and By-laws that physicians may be admitted from all parts of northern Ohio; and in response to the invitations sent out, thirty applications were received for *non-resident* membership. The Society now numbers over two hundred *resident* members, and is steadily growing.

At this meeting Dr. Howard A. Kelly, of Johns Hopkins University, Baltimore, read a paper entitled "A Consideration of Intra-abdominal Pressure, with Practical Deductions applicable to Gynecology." He was listened to with close attention, and the many practical points deduced were received with marked appreciation.

This was the first of a series of papers to be read

before the Society during the year by prominent men from other cities.

Professor Kelly presented to the Society a rare old book—a copy of the work on anatomy published by Vesalius in 1514, and also one published by Tulf, in Amsterdam, in 1716, entitled *The Century of Observations*. These were given for a nucleus around which the Society hopes to gather a large medical library. Several large and valuable private collections have been offered, and the Society waits only for a permanent headquarters in a fire-proof building.

One of our distinguished guests said: "I am glad that I came, as I have never before in my life seen such a gathering in a local medical society. A sort of medical revival must have struck Cleveland. I venture to predict that the enthusiasm shown is indicative of a great future for the Society. The accumulation of a medical library requires time more than anything else. Books are donated rather than purchased, but I am sure that a large medical library will be rapidly collected in this great and growing medical center, through the efforts of your Society."

Dr. M. J. Parker read a paper on "Hypnotism," and ex-Judge Wing opened the discussion by setting forth the medico-legal aspects; Dr. Henry S. Upson following with views from the "medical standpoint."

On the following morning, Dr. Kelly gave a clinic in Charity Hospital before an immense number of physicians, many of whom were from neighboring cities and towns. He first catheterized the ureters in a case of suspected hydro-nephrosis—illustrating in the clinic many things of which he had spoken the previous evening.

The second case was one of retroversion, which he brought into slight anteversion by two sutures through the posterior uterine and anterior abdominal walls. His method of suturing the abdominal wound was much appreciated. He used three sets of sutures, and all buried. The last set brings together the cut surfaces of skin—the stitches *not* piercing the epithelial layer, and arranged in semblance to "the walls of Troy." The last operation was one upon a pelvic abscess, which was opened and drained through the vagina.

#### FOOT-BALL AT WEST POINT.

To the Editor of THE MEDICAL NEWS,

SIR: In your issue for March 3, 1894, p. 250, I published some comparative statistics as to accidents from foot-ball, riding, and in the gymnasium at West Point, covering three months, from September 1 to November 30, 1893. On writing to Dr. P. F. Harvey, post surgeon, to learn whether similar statistics had been kept for former years, I find that the only statistics available are in the following table for 1892. For the purpose of comparison I have put the percentages of 1893 and those of 1892 side by side.

COMPARATIVE STATEMENT OF INJURIES TO CADETS FROM FOOT-BALL, RIDING, AND GYMNASIUMS AT WEST POINT, N. Y., FOR A PERIOD OF THREE MONTHS IN 1892.

1. Injuries of all Kinds.	Number.
Foot-ball injuries, Sept. 1, 1892, to Nov. 30, 1892	37
Injuries in Riding Hall, Oct. 15, 1892, to Jan. 15, 1893.	26
Injuries in gymnasium . . . . .	10

#### 2. Number of Men.

Who played foot-ball . . . . .	27
Under instructions in riding hall . . . . .	198
" " in gymnasium . . . . .	101

#### 3. Days Lost.

From foot-ball accidents . . . . .	106
Riding injuries . . . . .	71
Accidents in gymnasium . . . . .	58 <sup>1</sup>

	1892.	1893.
Per cent. of accidents per man in foot-ball . . . . .	1.05	1.6
" " " " " riding . . . . .	0.11	0.09
" " " " " gymnasium . . . . .	0.10	0.08
" " days lost per man in playing foot-ball . . . . .	3.93	8.01
" " " " " riding . . . . .	0.35	0.31
" " " " " gymnasium . . . . .	0.57	0.15
" " men off duty per diem in foot-ball . . . . .	1.18	3.01
" " " " " riding . . . . .	0.79	0.63
" " " " " gymnasium . . . . .	0.64	0.12
" " days lost per accident in foot-ball . . . . .	2.98	5.01
" " " " " riding . . . . .	2.74	3.04
" " " " " gymnasium . . . . .	5.80	1.02

It will be observed that there is but little difference in the two series of injuries. The serious disproportion, therefore, against foot-ball, as compared with the two other forms of athletics, seems to be normal rather than accidental.

One other point to which Dr. Harvey calls attention, and of which I was not aware when I wrote the last letter, emphasizes very clearly the relative frequency of the accidents. Foot-ball games, he states, are played only on Saturday afternoons. Instruction in the riding hall is given three times a week, and in the gymnasium six times a week. "In other words," as Dr. Harvey says, "if accidents always happened in the ratio here given, the number which *would* have occurred in foot-ball had it been played as many days as instruction in riding was given would have been *three times* the number stated, and *six times* the number if played as often as instruction in the gymnasium was given."

Very truly yours,

W. W. KEEN.

1729 CHESTNUT ST., PHILADELPHIA.

March 14, 1894.

#### NEWS ITEMS.

The Shelby County Medical Society will hold its sixth annual meeting at Shelbyville, Ind., April 9, 1894. Dr. J. M. Adams is the President and Dr. J. W. Rucker Secretary. An interesting scientific and social program has been prepared.

The Laryngological Society of London, at a recent meeting, elected J. Solis-Cohen, of Philadelphia, and G. M. Lefferts, of New York, to honorary membership.

The Louisville Medical Monthly is the name of a new journal, edited by Dr. James B. Steedman and Dr. George M. Warner.

Adolph von Bardeleben, the distinguished German surgeon, celebrated his seventy-fifth birthday on March 1st.

Dr. James Israel, of Berlin, has been made Professor of Surgery.

<sup>1</sup> 46 days of this lost by one case (fracture).